

**CELLPHONE BANKING ADOPTION AND CONTINUANCE OF USE IN AN
INTERNET BANKING CONTEXT: A STUDY OF CONSUMERS' CROSS-CHANNEL
COGNITIVE EVALUATIONS**

by

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Submitted in fulfilment of the requirements for the degree

PHILOSOPHIAE DOCTOR

(PhD)



STELLENBOSCH UNIVERSITY

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MARCH 2013

DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: November 2012

ACKNOWLEDGEMENTS

I would like to take this opportunity to acknowledge and thank those who made this work possible.

I must first express my gratitude towards my promotor, Professor Christo Boshoff. His leadership, support, attention to detail, hard work, and scholarship enabled me to complete this thesis. Also, I want to express my sincere thanks for the generous financial support he presented me with to complete my PhD at Stellenbosch University.

I also want to thank the following individuals for their assistance with the data collection; Stephan Eckbergh (Travelstart.co.za), Jaco Jonker (Bid or Buy), Servaas de Kock (OFM) and several individuals at the University of the Free State. Moreover, I would like to express thanks to every respondent who took time to complete the survey.

During the past four years many individuals provided advice with regard to my study. Thank you to everyone who helped in one way or another.

To my lovely wife, Barbara – thank you for your love, understanding, support and encouragement over the past four years. I have finally achieved this career goal! Now we have every weekend and holiday for ourselves.

To my five month old son, De Villiers – I love you a lot! Every time I look at you I realise how blessed mommy and I am to have a beautiful, friendly boy like you. I promise to make up for the little time that I have spent with you over the last few months.

Lastly, I want to praise the Lord Almighty for providing me with so many blessings during the completion of my thesis. Never was I in want; He always provided. Thank you God for “maketh me to lie down in green pastures”.

ABSTRACT

The convergence of the Internet, wireless technologies, and mobile devices has led to the development of a new paradigm of transacting, namely, mobile commerce. Because banking activities are easily digitised and automated, banks have seized the mobile transacting opportunity and have developed cellphone banking applications that allow more flexibility for bank clients than internet banking in terms of anywhere, anytime banking. For banks, considering the benefits associated with multi-channel customers, the ideal situation would be that bank clients using internet banking also adopt and continue to use cellphone banking in the future. Therefore, to assist marketing managers with the development of marketing strategies to enhance the concurrent use of internet and cellphone banking, this study investigates the influence of internet banking cognitive evaluations on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of the intention to use and the continuance of use intention of cellphone banking.

A literature review revealed that two consumer behaviour theories can guide cross-channel cognitive evaluations between the internet banking and cellphone banking channel namely, expectation-transfer theory and status quo bias theory. In the context of this study, expectation-transfer theory can explain cross-channel evaluative synergies from the internet banking channel to the cellphone banking channel, as well as dissynergies; whilst status quo bias underpins only evaluative dissynergies. These theories point to internet banking beliefs that could influence the perceived ease of use and perceived usefulness of cellphone banking. Based on the literature review, a conceptual model was developed of the formation of intention to use and the continuance of use intention of cellphone banking in an internet banking context.

To assess the validity of the model empirically, data were collected from 678 users of only internet banking and 491 users of both internet and cellphone banking. The data collected in the empirical phase of the study were analysed using the structural equations modelling (SEM) software program AMOS 20.0.

The results revealed that the perceived convenience and time saving of internet banking positively influence the perceived usefulness of cellphone banking for the users of both internet and cellphone banking. On the other hand, only the perceived convenience of internet banking influenced the cellphone banking usefulness perceptions of the users of only internet banking. Furthermore, internet banking trust and risk perceptions only

influenced the cellphone banking usefulness perceptions of the users of only internet banking. Expectation-transfer in both cohorts was also confirmed between the ease of use perceptions of internet banking and the perceived ease of use of cellphone banking. The results also confirmed that internet banking facilitating conditions negatively influence the perceived usefulness of cellphone banking (evidence of status quo bias).

The theoretical contribution of the study is apparent at three different levels. Firstly, the conceptual model of cross-channel cognitive evaluations extends the Technology Acceptance Model (TAM) with beliefs of a related technology as the determinants of perceived usefulness and perceived ease of use. Secondly, the study provides more insights into how cross-channel cognitive evaluations influence the formation of intention to use and the continuance of use intention of cellphone banking. And lastly, the study identifies additional sources of expectation-transfer and status-quo bias in the multi-channel marketing context.

The study provides valuable insights into internet – cellphone banking multi-channel consumer behaviour that should be considered by managers in the development of cellphone banking marketing strategies. To facilitate the conversion from internet banking to the concurrent usage of internet and cellphone banking, managers of cellphone banking services must ensure that the internet banking service is reliable and risk free. Equally important, cellphone banking must be marketed as a complementary channel to internet banking. In other words, the usefulness of cellphone banking must be emphasised in situations when the bank client is not near a computer to do internet banking or when he/she does not have the time or money to use a computer for internet banking. And lastly, to enhance the adoption of cellphone banking marketing communications must emphasise the similarities between internet and cellphone banking so that expectation-transfer between the two channels can influence behavioural intentions to adopt cellphone banking.

Based on the results of the study, several recommendations can be made to enhance the continuance of use of cellphone banking. Firstly, marketing communications must remind the concurrent users of internet and cellphone banking of why they are using cellphone banking. The most important reason to remind them of is the usefulness of cellphone banking in situations where there is a lack of internet banking facilitating conditions. Marketing managers should also take note that cellphone banking users do not draw on internet banking trust and risk perceptions to form perceptions of the usefulness of

cellphone banking. It may be that they only consider trust and risk perceptions directly related to cellphone banking. This conclusion emphasises the importance of cellphone banking trust and risk perceptions in cellphone banking continuance of use behaviour.

Finally, the study quantified the influence of internet banking cognitive evaluations on the formation of intention to use and the continuance of use intention of cellphone banking. Considering this result, the study provides valuable information for marketing managers of cellphone services. The methodology employed can also guide future studies exploring cross-channel evaluations in a multi-channel marketing context.

ABSTRAK

Die sameloop van maklike toegang tot die Internet, die ontwikkeling van draadlose tegnologieë en die beskikbaarheid van mobiele toestelle het gelei tot 'n nuwe transaksieparadigma, naamlik mobiele handel. Aangesien bankaktiwiteite maklik digitiseer en outomatiseer, het banke die mobiele verrigtingsgeleentheid aangegryp en selfoonbankaanwendings ontwikkel wat vir bankkliënte meer buigsaamheid as internetbankdienste inhou wat 'enige plek, enige tyd' bankwese betref. Gegewe die voordele van multikanaal gebruik, is die ideaal vir banke dat kliënte wat internetbankdienste gebruik, ook selfoonbankdienste aanvaar en in die toekoms bly gebruik. Met die oog daarop om bemakingsbestuurders by te staan in die ontwikkeling van bemakingsstrategieë om die gelyktydige gebruik van internet- en selfoonbankdienste te bevorder, ondersoek hierdie studie die invloed van kognitiewe evaluerings oor internetbankwese op die waargenome nuttigheid en waargenome maklike gebruik van selfoonbankdienste in die vorming van die gebruiksvorneme en voortgesette gebruiksvorneme ten opsigte van selfoonbankdienste.

'n Literatuuroorsig het getoon dat twee verbruikersgedragsteorieë kruiskanaal kognitiewe evaluerings tussen die internetbankkanaal en selfoonbankkanaal kan voorlig, naamlik, Verwagtingsoordragteorie ("Expectation-transfer Theory") en Status Quo Vooroordeel Teorie ("Status Quo Bias Theory"). In die konteks van hierdie studie kan Verwagtingsoordragteorie kruiskanaalevalueringsinergieë en dissinergieë van die internetbankkanaal na die selfoonbankkanaal toe verduidelik, terwyl Status Quo Vooroordeel Teorie slegs evaluerende dissinergieë stut. Hierdie teorieë belig internetbankoortuigings wat die waargenome nuttigheid en waargenome maklike gebruik van selfoonbankdienste kan beïnvloed. 'n Konseptuele model van die vorming van die gebruiksvorneme en voortgesette gebruiksvorneme van selfoonbankdienste in 'n internetbankkonteks is op grond van die literatuuroorsig ontwikkel.

Met die oog daarop om die geldigheid van die model empiries te bepaal, is data van 678 gebruikers van slegs internet bankdienste en 491 gebruikers van internet sowel as selfoonbankdienste ingesamel. Die data wat tydens die empiriese fase van die studie ingesamel is, is met behulp van die strukturele vergelykingsmodelleringsagtewareprogram ("structural equations modelling" (SEM)) AMOS 20.0 analiseer.

Volgens die resultate het die waargenome gerieflikheid en tydbesparing van internetbankwese die waargenome nuttigheid van selfoonbankdienste positief beïnvloed

by gebruikers van beide internet en selfoonbankdienste. Hierteenoor het slegs die waargenome gerieflikheid van internetbankdienste die selfoonbankdiensnuttigheids-waarnemings van gebruikers van slegs internetbankdienste beïnvloed. Verder het internetbankdiensvertroue en risikowaarnemings slegs die selfoonbankdiensnuttigheid van die gebruikers van slegs internetbankdienste beïnvloed. Verwachtingsoordrag in beide kohorte is ook bevestig tussen die maklike gebruik persepsies van internetbankdienste en die waargenome maklike gebruik van selfoonbankdienste. Die resultate bevestig ook dat internetbankfasiliteringsomstandighede die waargenome nuttigheid van selfoonbankdienste negatief beïnvloed (manifestering van status quo vooroordeel).

Die teoretiese bydrae van die studie blyk op drie vlakke. Eerstens brei die konseptuele model van kruiskanaal kognitiewe evaluering die Tegnologie Aanvaardingsmodel ("Technology Acceptance Model" (TAM)) uit ten opsigte van oortuigings oor 'n verwante tegnologie as die bepalers van waargenome nuttigheid en waargenome maklike gebruik. Die studie bied tweedens ook insigte in hoe kruiskanaal kognitiewe evaluering die vorming van gebruiksvorneme en voortgesette gebruiksvorneme van selfoonbankdienste beïnvloed. Die studie identifiseer laastens ook addisionele verwachtingsoordrag- en status quo vooroordeel bronne in die multikanaalbemarkingskonteks.

Die studie bied waardevolle insig oor internet – selfoonbankmultikanaal-verbruikersgedrag wat bestuurders in die ontwikkeling van selfoonbank-diensbemarkingstrategieë moet oorweeg. Om die oorskakeling van internetbankdienste na die gelyktydige gebruik van internet en selfoonbankdienste te fasiliteer, moet bestuurders van selfoonbankdienste verseker dat internetbankdienste betroubaar en risikovry is. Wat net so belangrik is, is dat selfoonbankwese as 'n komplementêre kanaal tot internet bankwese bemark moet word. Die nuttigheid van selfoonbankwese moet, met ander woorde, beklemtoon word in situasies waar die kliënt nie naby 'n rekenaar is vir internetbankgebruik nie of wanneer hy/sy nie die geld of tyd het om 'n rekenaar vir internetbankdienste te gebruik nie. Laastens, om die aanvaarding van selfoonbankwese te versterk, moet bemarkingskommunikasiemateriaal die ooreenkomste tussen internet en selfoonbankwese op so 'n wyse beklemtoon dat verwachtingsoordrag tussen die twee kanale gedragsvoornemens om selfoonbankdienste te aanvaar, beïnvloed.

Verskeie aanbevelings spruit voort uit die resultate oor hoe die voortgesette gebruik van selfoonbankdienste verhoog kan word. Eerstens moet bemarkingskommunikasie-

boodskappe die gelyktydige gebruikers van internet en selfoonbankwese herinner waarom hulle selfoonbankdienste gebruik. Die belangrikste rede in hierdie verband is die nuttigheid van selfoonbankwese in situasies waar internetbankfasiliteringsomstandighede afwesig is. Bemerkingsbestuurders moet ook in ag neem dat selfoonbankgebruikers nie op internetbankvertroue en risikowaarnemings steun om persepsies oor die nuttigheid van selfoonbankwese te vorm nie. Hulle oorweeg waarskynlik net vertroue en risikopersepsies wat direk met selfoonbankdienste verband hou. Hierdie gevolgtrekking beklemtoon die belangrikheid van vertroue in selfoonbankdienste en riskowaarnemings in voortgesette selfoonbankgebruikgedrag.

Laastens, die studie kwantifiseer die invloed van kognitiewe evaluering oor internetbankwese in die vorming van selfoonbankwese gebruiksvorneme en voortgesette gebruiksvorneme. Veral in die lig van hierdie resultaat bied die studie waardevolle inligting vir selfoonbankdiensbemarkingsbestuurders. Die metodes wat gebruik is, kan ook verdere studies waarin kruiskanaalevaluering in 'n multikanaal-bemarkingskonteks ondersoek word, rig.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Although we as consumers began using the Internet as a communications and transactions medium in the early 1990s, the Internet existed long before that. In 1962, Licklider introduced the concept of a global network of computers, referring to it as “Galactic network” (Anonymous, No date-a). Initially, the Internet was not developed for commercial purposes. In the 1960s the driving force behind the development of a global network of computers was for the United States of America (USA) to control bombers and missiles in the case of a nuclear event. In the 1970s, internet technology was further developed by the Defence Advanced Research Projects Agency (DARPA) and networked protocol, and later on TCP/IP (the communication protocol for the Internet), was developed that enable computers on the same network or different networks to communicate with each other.

Commercial internet service providers (ISPs) began to emerge in the late 1980s and 1990s. The Internet was finally commercialised in 1995 when the National Science Foundation Network (NSFNET) was decommissioned (Anonymous, No date-c). Since then, the Internet has grown exponentially. In 2011, there were 3.146 billion email accounts worldwide, 555 million websites, 220 million registered domain names and 2.1 billion internet users (Anonymous, 2012). In addition to the use of the Internet for communication, consumers have also adopted the Internet for online purchasing of products and services. In 2011 online retail sales in Europe (including the United Kingdom) was estimated at €200.52bn and in the USA at \$198.8bn (Center for Retail Research, 2012).

Another trend, the proliferation of wireless telephones, has led to the convergence of wireless communication and the Internet, which has enabled mobile commerce (m-commerce) (Barnes, 2002). Mobile commerce can be defined as direct and indirect transactions with monetary value conducted by means of a wireless communications network (Wu and Wang, 2005). As a new stage of electronic commerce, m-commerce has several unique advantages over electronic commerce. For example, m-commerce offers instantaneity, ubiquity, localisation, personalisation and identification. Moreover, due to the

popularity of mobile devices, as well as increasingly powerful mobile technologies, m-commerce has emerged as a new business phenomena (Zhang, Zhu and Liu, 2012).

The proliferation of internet and m-commerce has encouraged many firms to develop both online and mobile service channels to market their products and services. The combination of online-and-mobile retail is a business model where a retailer integrates both online and mobile operations to offer more benefits to customers by either providing fast online transactions or ubiquitous mobile services. The integration between internet commerce and m-commerce is expected to change consumer behaviours and create new business opportunities and synergies for the online-and-mobile multi-channel retailer (Lin, 2011).

In the financial industry, banks have seized the mobile commerce opportunity and also introduced cellphone banking services as an additional channel to traditional banking channels and other electronic banking channels. However, bank clients do not consider banking channels in isolation. Indeed, the cognitive evaluations in different service channels interact with each other to affect customer behaviour (Falk, Schepers, Hammerschmidt and Bauer, 2007; Montoya-Weiss, Voss and Grewal, 2003; Van Birgelen, de Jong and de Ruyter, 2006). Thus, the behavioural intentions to adopt and the continuance of use of cellphone banking are to some extent influenced by bank clients' evaluations of the internet banking channel.

There is a dearth of information on the adoption of cellphone banking in an internet banking context and the literature provides only limited insights on how internet banking influences the formation of intention and the continuance of use intention of cellphone banking. In light of this gap in the current body of knowledge on cellphone banking adoption in an internet banking context, this study will attempt to provide insight into the formation of intention to adopt and the continuance of use intention of cellphone banking by considering cognitive evaluative synergies and dissynergies between internet and cellphone banking. By identifying the evaluative synergies and dissynergies, marketing managers responsible for the development of the electronic banking marketing strategies will be better able to develop multi-channel marketing strategies to enhance and sustain the concurrent use of both the internet and cellphone banking channel by their clients. To summarise, the focus of the study is to investigate the extent that cognitive evaluations of internet banking influence the formation of intention and the continuance of use intention of cellphone banking.

In the following section, key terminology will be defined to ensure the appropriate level of shared understanding for the purpose of this study. Next, the management dilemma will be explained and the demarcation of the proposed study will be presented. This will be followed by a brief discussion on multi-channel marketing, as well as the Technology Acceptance Model as the research question and objectives build on these. The research method is then described, where after the potential contribution and limitations of the study are discussed.

1.2 TERMINOLOGY

The following terminology will be used in the study and can be defined as follows:

Cellphone banking. An electronic banking system that enables bank clients to access their bank accounts through mobile (cellular) devices in order to conduct conventional financial transactions (e.g. balance checks, funds transfers and account payments), as well as more advanced bank transactions such as stock trading and smart card-based service payments (Kim, Shin and Lee, 2009a).

Cross-channel cognitive evaluations. The cognitive processes underlying customers' relative evaluations of alternative channels offered by the same firm (Falk et al., 2007).

Cross-channel evaluative synergy. A cross-channel evaluative synergy occurs when a customer's evaluation of one channel has a positive influence on the adoption of another channel of the firm (Falk et al., 2007).

Cross-channel evaluative dissynergy. A cross-channel evaluative dissynergy occurs when a customer's evaluation of one channel results in an evaluative conflict with another channel of the firm (Falk et al., 2007). In other words, the evaluative conflict has a negative influence on the adoption of the other channel of the firm.

Expectation-transfer. The cognitive process underlying the making of generalisations across objects, events and entities in the same category or domain. Expectation-transfer is the cognitive process underlying cross-channel evaluative synergies and possibly cross-channel evaluative dissynergies.

Internet banking. An electronic banking system that allows clients to perform a wide range of banking transactions electronically via the bank's website, by using a computer and modem to connect to the Internet (Tan and Teo, 2000).

Marketing. Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners and society at large (American Marketing Association, 2012).

Multi-channel marketing. A distribution strategy that entails offering customers alternative channels to reach departments within firms (Rangaswamy and Van Bruggen, 2005).

Status quo bias. The tendency of individuals to prefer the current situation or decision, irrespective of whether the alternative has a higher utility (Falk et al., 2007). Status quo bias is one of the cognitive processes potentially underlying cross-channel evaluative dissynergies.

Users of both internet and cellphone banking. Bank clients who are using both internet banking and cellphone banking to conduct their bank transactions. In this study 'users of both internet and cellphone banking' are also referred to as 'concurrent users'.

Users of only internet banking. Bank clients who are using internet banking, but not cellphone banking to conduct their bank transactions.

1.3 THE MANAGEMENT DILEMMA

In the last decade, the convergence of the Internet, wireless technologies, and mobile devices has made m-commerce possible, a new paradigm of an emerging information technology (IT) artefact (Luo, Li, Zhang and Shim, 2010). Because banking activities are easily digitised and automated (Bradley and Stewart, 2002), banks have seized the m-commerce opportunity and have developed cellphone banking applications that allow more flexibility for bank clients' in terms of anywhere, anytime banking.

The introduction of cellphone banking by banks as an additional channel for bank clients is considered by some researchers as one of the most dramatic innovations in the financial industry. For example, Lee, McGoldrick, Keeling and Doherty (2003a) claim that cellphone banking will be one of the most value-adding and important mobile services for consumers. Luo et al. (2010) describe cellphone banking as an innovative method for accessing banking services that offers a great deal of promise in its ability to provide anywhere, anytime banking. Likewise, many information systems researchers have proposed that cellphone banking can be considered as one of the most significant technological innovations, which is emerging as a key platform for expanding access to

bank transactions via cellphone or handheld devices, and operating wireless communications technologies (Hsiu-Fen, 2011).

Cellphone banking is one of a number of channels that banks offer to their clients to conduct their banking activities. Alternative channels that clients can use include - among others - branch banking, automatic-teller-machines (ATMs), telephone banking and internet banking. Generally speaking, clients use one or more channels to conduct their banking activities. From a bank's perspective, the institution would promote the use of more than one channel, as the usage of multiple channels can lead to a higher 'share of wallet' from multi-channel users than single-channel users (Kumar and Venkatesan, 2005).

Other general benefits of multi-channel marketing for banks that may realise due to the concurrent use of internet and cellphone banking by clients are lasting relationships with clients by simultaneously offering clients and prospects information; and better products, services and support (or any combination of these) through two or more synchronised channels (Van Birgelen et al., 2006). By synchronising channels, banks can create superior channel service outputs that give clients fewer reasons or opportunities to switch to competitors because of inconvenient channel access, or loss of control in interacting with the firm (Rangaswamy and Van Bruggen, 2005). These benefits of a multi-channel marketing strategy accrue by offering a combination of channels whereby the firm better satisfy the needs of customers by utilising the benefits and overcoming the deficiencies of each individual channel.

Students of multi-channel marketing consumer behaviour posit that customers make channel adoption and usage decisions on the relative assessment of a service provider's alternative channels (Falk et al., 2007; Montoya-Weiss et al., 2003). In other words, potential adopters and current users of cellphone banking consistently evaluate the cellphone banking channel against other channels offered by banks in the formation of intention to adopt or the continuance of use of cellphone banking. One of the alternative channels that bank clients (referring here to potential and current users of cellphone banking) can use is internet banking. Because internet banking and cellphone banking are very similar services (Luarn and Lin, 2005), internet banking can be considered as a key threat to the adoption of cellphone banking (Barnes and Corbitt, 2003). Thus, the question arises how the use of internet banking influences the adoption and the continuance of use of cellphone banking.

To date, only a few researchers have considered the influence of internet banking on the adoption or the continued use of cellphone banking. According to Suoranta and Mattila (2004) “it seems that typical internet banking users will continue to use the wired channel and the current users of automatic bill payment and branch offices will be more likely to ‘leap’ to use cellphone banking. Internet banking is obviously not the related service product category as suggested”. Suoranta and Mattila (2004) further argue that new cellphone banking innovators are not likely to be drawn from heavy users of internet banking services, as they will in all probability continue to use internet banking. They add that it is more reasonable for banks not to invest in convincing regular internet banking clients to change from one electronic channel to another, but that they should rather try to get clients outside this segment (referring to the users of internet banking) interested in the advantages of cellphone banking. Lee et al. (2003a) argue that problems with internet banking may either prevent clients from adopting 3G cellphone banking services or encourage them to adopt the service. Lee et al. (2003a) also point out that additional research is required to identify under what conditions clients’ adoption of cellphone banking may or may not be affected by their experiences with internet banking.

The two cited studies provide very limited insights into the consumer behaviour that underpin the adoption and the continued use of cellphone banking in an internet banking context. More importantly, the two studies do not provide any insights based on empirical evidence for marketing managers of cellphone banking in the development of a multi-channel marketing strategy that support the adoption and the continued use of cellphone banking by the users of internet banking. Therefore, the lack of understanding of consumer behaviour concerning the adoption and the continued use of cellphone banking in an internet banking context is the management dilemma that guides this study.

1.4 DEMARCATION OF THE STUDY

Marketing is one of the fundamental areas within a firm that must be managed to realise the vision, mission and objectives of the firm (Marx, Van Rooyen, Bosch and Reynders, 2009: 30). One of the key issues for marketing managers toward satisfying consumers’ needs is the selection of the appropriate marketing channel or mix of marketing channels to present products or services in adequate quantities, in convenient locations and at the times when customers want to buy them. In the previous section, two important issues underpinning this study were pointed out. Firstly, customers make channel adoption and usage decisions on the relative assessment of alternative channels. Thus, developing a

successful multi-channel marketing strategy depends on understanding customers' cross-channel cognitive evaluations. Secondly, a lack of research based on consumer behaviour with regard to the adoption of cellphone banking in an internet banking context was pointed out. In a multi-channel marketing context, adopting the point of view that banks would prefer that internet banking users also adopt cellphone banking, one needs to understand how clients' cognitive evaluations of internet banking influence their formation of intention to adopt cellphone banking, as well as influencing the continuance of use intention of those clients who have already adopted cellphone banking. Thus, the field of study falls broadly under the discipline of marketing and, more specifically, in the areas of consumer behaviour and multi-channel marketing.

1.5 MULTI-CHANNEL MARKETING AND THE TECHNOLOGY ACCEPTANCE MODEL

Multi-channel marketing entails offering customers alternative channels to reach departments within firms (Rangaswamy and Van Bruggen, 2005). For the purpose of this study, a channel is defined as a customer contact point, or a medium through which the firm and the customer interacts (Neslin, Grewal, Leghorn, Shankar, Teerling, Thomas and Verhoef, 2006). In conceptualising the multi-channel marketing concept, one should distinguish between multi-channel marketing and traditional multiple-channel marketing. Multi-channel marketing refers to a situation when customers can use different channels to interact with the firm, whilst in multiple-channel marketing, different segments of the customer base is reached through different channels (Rangaswamy and Van Bruggen, 2005). Therefore, multi-channel shoppers are customers who have made a purchase in more than one channel during a specified time period (Kumar and Venkatesan, 2005). In line with multi-channel marketing, multi-channel service retailing (the domain of the study) can be defined as the set of activities involved in selling merchandise or services to consumers utilising more than one channel and the primary source of revenue is retailing activities (Zang, Farris, Irvin, Kushwaha, Steenburgh and Weitz, 2010).

Understanding consumer behaviour is the primary point of departure for effective marketing, as well as for effective multi-channel marketing (Konus, Verhoef and Neslin, 2008; Neslin et al., 2006; Nicholson, Clarke and Blakemore, 2002). Specifically, a key issue in multi-channel marketing is to understand how customers choose channels (Neslin et al., 2006). By understanding what drives customers to buy from one or multiple channels, marketers can better predict the likelihood of attracting new customers to new

channels and/or cannibalising existing sales at a potentially higher or lower profit. Marketers may also be better prepared to address the unique challenges of serving customers through multiple channels (Schoenbachler and Gordon, 2002). To better understand channel adoption in the multi-channel marketing domain, researchers have focused their efforts on a number of pertinent streams of research. One of these streams of research related to channel adoption in a multi-channel environment is research that directly investigates channel choice. Examples of studies focusing on channel choice are Schoenbachler and Gordon (2002), Balasubramanian, Raghunathan and Mahajan (2005) and Ansari, Mela and Neslin (2008).

Strongly related to the first stream of research are attempts at profiling the multi-channel shopper. This stream of research consists of studies trying to create a general profile of the multi-channel shopper and in particular those attempting to match customer profiles to the use of two or more channels. Examples of studies developing a general profile of the multi-channel customer include Neslin et al. (2006), whilst examples of profiling customers across channels are McGoldrick and Collins (2007), Verhoef, Neslin and Vroomen (2007), Frambach, Roest and Krishnan (2007) and Kumar and Venkatesan (2005).

A third stream of research addresses multi-channel topics related to consumer behaviour such as customer loyalty (e.g. Fernández-Sabiote and Román, 2012; Shankar, Smith and Rangaswamy, 2003; Verhoef and Donkers, 2005), channel switching (e.g. Pookulangara, Hawley and Xiao, 2011), channel extension behaviour (e.g. Yang, Lu, Zhao and Gupta, 2011) and cross-shopping behaviour (Skallerud, Korneliussen and Olsen, 2009). Over the years these streams of research generated valuable insights into channel adoption in a multi-channel marketing context.

Internet banking and the cellphone banking services of a bank can be viewed as concurrent channels; channels owned by one company and providing similar services simultaneously (Neslin et al., 2006). Furthermore, both internet banking and cellphone banking entail access to banking services through electronic networks; access by means of a computer connected to the internet and access by means of a cellphone that is Wireless Application Protocol (WAP) or Wireless Internet Gateway (WIG) enabled. Internet banking and cellphone banking are also both subsets of electronic banking (Lassar, Manolis and Lassar, 2005; Wang, Wang, Lin and Tang, 2003).

To date, multi-channel marketing research has revealed that self-service channels such as internet and cellphone banking can be complementary. In other words, the adoption of one

channel has a positive influence on the adoption of another self-service channel. On the other hand, channels can be competitive. In the case of competitive self-service channels, the evaluations of one channel has a negative influence on the perceptions of the other self-service channel (Falk et al., 2007). Internet banking and cellphone banking can be viewed by clients as either competitive channels or complementary channels. If clients only adopt internet banking or cellphone banking, then internet banking and cellphone banking can be regarded as potentially competitive channels. Conversely, if clients adopt both internet and cellphone banking, then the two channels are complementary channels. In the context of this study, given the argument that banks would encourage clients to make use of multiple channels, internet banking and cellphone banking are viewed as complementary channels.

In the adoption of concurrent channels, consumers' cross-channel cognitive evaluations are important in understanding the formation of intention to adopt or the continuance of use intention of one channel in the context of the other channel(s) used by the consumer. According to previous studies, cross-channel cognitive evaluations can be synergistic or dissynergistic. Examples of cross-channel synergistic effects are given in Yang et al. (2011) and Kuan and Bock (2007). Yang et al. (2011) found that offline service quality can have a significant positive influence on online service quality. Another study found that offline trust has a significant positive influence on online trust (Kuan and Bock, 2007). The majority of the studies that investigated cognitive evaluations between domains (channels) propose a synergistic effect; however, evaluative dissynergies can also occur (Falk et al., 2007). Falk et al. (2007) found that offline channel satisfaction has a significant negative influence on the perceived usefulness of the online self-service channel (SSC) and that offline channel satisfaction has a significant positive influence on the perceived risk of the online SSC. Likewise, Montoya-Weiss et al. (2003) found that alternative channels' service quality (branch office and telephone) have a significant negative influence on the use of an online channel. And lastly, Van Birgelen et al. (2006) found that the positive effect of branch unit-level satisfaction with employee performance on behavioural intentions is significantly strengthened by satisfaction with internet banking performance with non-routine services (i.e., evidence of symmetry), but that the positive effect of branch unit-level satisfaction with office performance on behavioural intentions is significantly weakened by satisfaction with internet banking performance with routine services (evidence of dissymmetry).

Given that the purpose of the study is to gain a better understanding of the intention to adopt and the continuance of use intention of cellphone banking in an internet banking context, the Technology Acceptance Model (TAM) will be the salient theory used to develop a conceptual model for both of the cohorts (users of only internet banking and the concurrent users of both internet and cellphone banking) in the study. The TAM, as discussed in Chapter 4, posits that usefulness and ease of use are the two salient beliefs influencing behavioural intentions of potential and current users of the specific technology. Thus, the two salient beliefs in the formation of intention and the continuance of use intention of cellphone banking are the perceived usefulness and perceived ease of use of cellphone banking. Therefore, to understand the synergistic and dyssynergistic cross-channel cognitive evaluations between internet and cellphone banking, one needs to understand how specific evaluations about internet banking influence the perceived usefulness and perceived ease of use of cellphone banking.

1.6 RESEARCH QUESTION

The management dilemma that guides this study is the lack of research on the influence of internet banking on the adoption and the continued use of cellphone banking. At the end of the previous section it was proposed that to understand the synergistic and dyssynergistic cross-channel cognitive evaluations between internet and cellphone banking, a study is necessary to determine how specific evaluations (beliefs) about internet banking influence the perceived usefulness and perceived ease of use of cellphone banking. According to the TAM, perceived usefulness and perceived ease of use should be the two salient beliefs in the formation of intention and the continuance of use intention of cellphone banking.

Thus, against this backdrop, in order to address the management dilemma, the research question formulated for this study is “What influence does internet banking cognitive evaluations have on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of the intention to use and the continuance of use intention of cellphone banking?” In the research question both intention to use and continuance of use intention are addressed. This duality is important because the success of information technology dependents more on continued usage rather than initial adoption (Bhattacharjee, 2001; Son and Han, 2011). However, continuance of use intention is not a relevant construct if the intended users do not first adopt the information technology.

1.7 THE OBJECTIVES OF THE STUDY

Given the stated research problem, the following objectives will be pursued.

1.7.1 Primary objective

The primary objective of this study is to assess the influence of internet banking cognitive evaluations on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of intention to use and the continuance of use intention of cellphone banking.

1.7.2 Secondary objectives

To address the primary objective, the following secondary objectives will be pursued:

- to consider the use of multi-channels in marketing;
- to describe internet and cellphone banking in depth;
- to identify external variables (beliefs pertaining to internet banking) from literature that could influence the perceived ease of use and perceived usefulness of cellphone banking for the users of only internet banking and the users of both internet and cellphone banking;
- to investigate the relationships between clients' beliefs about internet banking and the formation of intention to adopt and the continuance of use intention of cellphone banking by means of structural equations modelling analysis; and
- to offer recommendations regarding the crafting of effective cellphone banking marketing strategies in a multi-channel marketing context.

1.8 RESEARCH METHOD

1.8.1 Literature study

Secondary sources of information were explored to review the role of consumer behaviour in the marketing of new technology, to gain an understanding of the TAM and to identify beliefs about internet banking that could influence the perceived ease of use and perceived usefulness of cellphone banking. The secondary sources used in this study include: articles published in accredited and other journals, conference papers, newspaper

articles and academic books. For the literature study, the following databases were consulted: Africa-Wide: NiPAD (incorporating South African Studies and African Studies), ACM, EBSCOHost, Emerald, Gartner, Oxford Journals, Sabinet Online Ltd., ScienceDirect, Scirus, Scopus, SSCI, SpringerLink, and Google Scholar.

1.8.2 Empirical study

In this section, a brief overview of the research method is provided. A more detailed discussion is available in Chapter 6.

1.8.2.1 Research design

After considering the usefulness of various types of research designs, the research design selected to address the primary objective of this study can be described as a descriptive research design, where information is collected in field conditions by means of a self-administered questionnaire, at a specific point in time and where the topical scope of the study is statistical.

1.8.2.2 Measurement

For each construct in the conceptual model a conceptual definition was formulated. These operationalisations were compiled from previous research that investigated similar constructs. The purpose of the conceptual definition was to specify the theoretical basis for the summated scale by defining the concept being represented in terms applicable to the research context (Hair, Black, Babin, Anderson and Tatham, 2006: 136). Once the conceptual definitions were formulated, a list of items (statements) was generated that was relevant to each construct and reflected a favourable or unfavourable position on the construct. The items listed to measure each construct were tested for content validity by means of panel evaluation (Cooper and Schindler, 2006: 319). The panel consisted of academics in the field of electronic-commerce (2) and bank clients (3). A pilot study was also undertaken to assess the reliability of the measurement scales and the unidimensionality of each scale.

In the study, open-ended and close-ended questions were used to collect the demographic information of the respondents and information about their internet banking behaviour. To collect the data to address the primary objective of the study, the Likert scale was selected as the appropriate measurement scale. A Likert scale is an appropriate measurement

scale to measure cognitive, affective and behavioural based attitudes (Cooper and Schindler, 2006: 339) such as beliefs about internet and cellphone banking, and intention and the continuance of use intention regarding cellphone banking.

1.8.2.3 Sampling

The target population of the study was defined as users of only internet banking and users of both internet and cellphone banking in South Africa, who are 18 years of age and older. The definition of the target population was appropriate as the primary objective of the study was to assess the influence of internet banking cognitive evaluations on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of intention to use and the continuance of use intention of cellphone banking. Since a sampling frame was not available, a non-probability sampling method, convenience sampling, was used.

According to Hair et al. (2006: 740-742) a number of issues must be considered in estimating the sample size required for structural equation modelling (SEM). The issues include the distributional properties of the data, the estimation method, model complexity, missing data and average error variance of indicators. Considering these factors, as well as financial and time constraints, the ideal sample size per cohort was set at 795 respondents. Eventually, data were collected from 678 users of only internet banking and 491 users of both internet and cellphone banking.

1.8.2.4 Data collection

Data were collected by means of an online survey. For the survey, the online questionnaire service of QuestionPro.com was used. To ensure that the respondents meet the criteria for participation, the criteria were stated clearly in the beginning of the questionnaire. The criteria for participation were: (a) the respondent must be 18 years of age and older and (b) must be a user of internet banking services.

To obtain a sufficient number of responses to analyse the two structural models, the questionnaire was advertised on the home page of a regional radio station and the Facebook page of major online businesses. In addition to these data collection points, the link to the online questionnaire was also distributed to employees of a firm via e-mail and

to the alumni of the University of the Free State via the alumni newsletter and alumni Facebook page.

1.8.2.5 Data analysis

The descriptive data were analysed using the statistical data analysis programme SPSS 20.0 using frequency tables, cross-tabulations, independent sample t-tests and one-way ANOVAs. In order to address the research objectives, structural equations modelling (SEM) was the preferred statistical analysis technique in this study. Conceptually, SEM is a collection of statistical techniques between one or more independent variables (IVs), either continuous or discrete, and one or more dependent variables (DVs), either continuous or discrete, to be examined. Both IVs and DVs can be either measured variables or latent variables. An important advantage of SEM over the basic general linear model is that dependent variables can also play the role of predictor variables within the same model.

Before testing the conceptual model with the data of the users of only internet banking and the users of both internet and cellphone banking, the psychometric properties of the two measurement models were evaluated. This was done by means of a confirmatory factor analysis (CFA) using the structural equations modelling programme AMOS 20.0. To address the primary research objective, the final phase of the analysis entailed the testing of the structural equations models. The focus of this phase of the analysis was to test the hypothesised relationships between the latent constructs in each structural model. Once adequate model fit was achieved, the standardised structural weights and p – values in each cohort's structural equations model were interpreted to determine which hypotheses were accepted or rejected. Additionally, a multi-group analysis was conducted to determine if the hypothesised cross-channel cognitive evaluations differ statistically across the cohorts.

1.9 CONTRIBUTION OF THE STUDY

The study makes a contribution to the marketing of cellphone banking services in a multi-channel environment, as well as to theory underpinning customers' cross-channel cognitive evaluations of e-services.

The study contributes to the extant body of knowledge on cellphone banking adoption available for marketing managers of such services by considering cellphone banking

adoption and the continuance of use in an internet banking context. As pointed out in the beginning of this chapter, very few researchers have investigated this issue. More importantly, the findings of those researchers who have investigated the issue provide very little insights into the adoption and continuance use of cellphone banking in an internet banking context. By understanding which aspects of internet banking has a synergistic or dissynergitic influence on the adoption and the continuance of use of cellphone banking, marketing managers can capitalise on the synergistic relationships between internet banking and cellphone banking and develop strategies to minimise the impact of evaluative dissynergies. Thus, the findings will assist marketing managers to develop marketing strategies to enhance the concurrent use of both internet and cellphone banking.

The proposed study also contributes to the theory underpinning customers' cross-channel cognitive evaluations of electronic-services (e-services) by considering evaluations of another e-service as the determinants of the perceived ease of use and perceived usefulness of an e-service. In no previous TAM study on the adoption and the continuance of use of an e-service has the evaluations of another e-service being considered as the determinants of perceived usefulness and perceived ease of use. Thus, this study contributes to the identification of the determinants of perceived usefulness and ease of use of e-services from a cross-channel evaluations perspective.

1.10 FRAMEWORK OF THE STUDY

| Chapter | Title | Main goal of the chapter |
|---------|---|---|
| 1 | Introduction | To provide a broad overview of the study. |
| 2 | Marketing theory and practice | To reconsider the theory underpinning marketing and to discuss multi-channel marketing. |
| 3 | An overview of internet and cellphone banking | To provide an overview of each of the two banking services. |
| 4 | Consumer behaviour theories underpinning the adoption and the continued use of concurrent electronic channels | To provide an overview of consumer behaviour theories that provide insights into the adoption and continuance of use intention of concurrent electronic channels. |

| | | |
|---|---|---|
| 5 | Conceptual model development | To identify from literature, internet banking beliefs that can be antecedents of the perceived ease of use and perceived usefulness of cellphone banking for users of only internet banking and users of both internet and cellphone banking. |
| 6 | Research method | To describe the research method. |
| 7 | Empirical results | To test the conceptual models by means of a structural equations modelling analysis. |
| 8 | Findings, conclusions and recommendations | To present final conclusions and recommendations with regard to the marketing of cellphone banking in the context of internet banking. |

1.11 SUMMARY

The adoption and continuance of use of concurrent electronic channels such as internet and cellphone banking is a critical aspect for banks. This challenge can be addressed by a thorough description of the how evaluative synergies and dissynergies between concurrent electronic channels influence clients' adoption and continuance of use behaviour. The study will aim to gain an understanding of how beliefs related to internet banking influence the formation of intention to adopt and continuance of use intention of cellphone banking through a literature review, followed by an empirical research survey among bank clients. This study will not only make an academic contribution to the field of multi-channel marketing, but will also provide marketing managers and practitioners with possible strategies to enhance the concurrent use of internet and cellphone banking.

CHAPTER 2

MARKETING THEORY AND PRACTICE

2.1 INTRODUCTION

Marketing, more than any other business function, deals with customers (Kotler and Armstrong, 2008: 4). Customers are the focal point of all marketing activities, because they are the purchasers of products that businesses develop, promote, distribute, and price. Therefore, the essence of marketing is to develop satisfying exchange relationships from which both customers and marketers benefit (Pride and Ferrell, 2010: 4).

The purpose of this chapter is to scrutinise marketing as a business function, as well as multi-channel marketing. Therefore, the role of marketing in business management is considered first, followed by a discussion of the marketing concept. In the discussion of the marketing concept, definitions of marketing are reviewed and similarities and differences in the definitions are pointed out. This first part of the chapter ends with the delineation of marketing as a business function.

From the discussion of marketing, 'customer value' is identified as a key concept in marketing that is a prerequisite for exchange to occur between the firm and its customers. The concept of 'customer value' is therefore explored by reviewing the definitions of customer value and from this review the key attributes of customer value are identified. Next in the chapter multi-channel marketing is discussed. This discussion focusses on explaining the concept of multi-channel marketing, how perceptions and preferences of customers influence the use of channels, the advantages of the mobile channel compared to other channels and consumer barriers to the adoption of the mobile channel. The chapter ends with a discussion of the challenges of multi-channel customer management.

2.2 BUSINESS MANAGEMENT

Business management as an applied science is concerned with the study of institutions in a particular economic system that satisfies the needs of a community (Cronje, Du Toit, Motlatla and Marais, 2004: 24). The economic system determines what goods and services will be produced, how the goods and services will be produced, and the needs

and wants that will be satisfied by the produced goods (Dlabay, Burrow and Kleindl, 2009: 17). There are four main types of economic systems.

- A command economy. In a command economy there are no private businesses and the state attempts to ensure an acceptable level of employment and economic activity by its direct control (Campbell and Craig, 2005: 167). Thus, the state decides which needs will be satisfied, who will produce the products or services and how the goods will be produced.
- A market economy. In this type of economy the resources are owned and controlled by the people of the country. The three economic questions (What goods/services will be produced? How it will be produced? and Which needs and wants will be satisfied?) are answered by individuals through the buying and selling of goods and services in the market. In such an economy the market is anywhere that goods and services exchange hands (Dlabay et al., 2009: 19).
- A traditional economy. In a traditional economy, goods and services are produced according to tradition or custom. Traditional economies are used in countries that are less developed and are not yet participating in a global economy (Dlabay et al., 2009: 20).
- Mixed economies. A mixed economy combines the elements of a command and market economy. In such an economy, there is a large private business sector and a sizeable state influence that regulates, to a greater or lesser extent, the activities of private business (Campbell and Craig, 2005: 167).

Taking into account that a firm is a component of the economic system, its task emerges from the economic principle - to determine how an organisation can realise the highest possible output (products and service) with the least possible input (labour, capital and land). More specifically, the task of a firm entails an examination of factors, methods and principles that enables a firm to function as efficiently and productively as possible in order to maximise its profits (Cronje et al., 2004: 25).

Participating in a market economy requires firms to be customer-orientated as they (customers) decide what to buy, where to buy, from whom to buy, and for what price they are willing to buy at. Thus, the key to realising the goals of the firm is by being more effective than competitors in creating, delivering, and communicating superior customer value to its chosen target markets (Kotler, 2003: 19). To deliver superior customer value, a

number of business functions and associated tasks must be performed in a coordinated manner (Marx et al., 2009: 26). In most firms, eight business functions can be identified (Marx et al., 2009: 29-30). These functions are general and strategic management, purchasing management, product and operations management, human resources management, management of public relations, financial management, information management and, the business function of interest in this study, marketing management.

2.3 THE MARKETING CONCEPT AS A MARKETING PHILOSOPHY

Over the years, the philosophy of marketing evolved from the sales era, to the production era, and to the marketing era. The marketing concept is the main theory underpinning the third era - the marketing era. In this section, the marketing concept will be discussed as it is operationalised in the marketing era. In addition to this, the evolvement of the marketing concept into the relationship era will also be explored.

2.3.1 The marketing concept in the marketing era

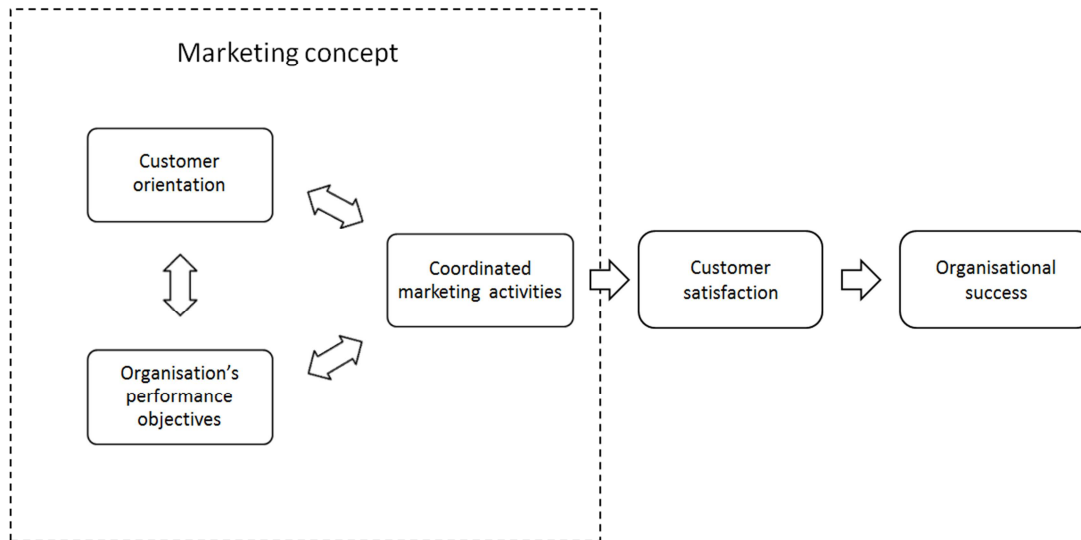
The marketing concept implies that all the activities of a firm is driven by a desire to satisfy customer needs and wants (McDonald and Christopher, 2003: 523). Therefore, the marketing concept advocates that customer needs and wants should be the point of departure for any marketing process (Svensson, 2001: 95). The marketing concept is built on two pillars. Firstly, a customer orientation is required to realise the firm's performance objectives (Etzel, Walker and Stanton, 2001: 12). Secondly, all marketing activities in a firm must be coordinated (Etzel et al., 2001: 12). This is illustrated in Figure 2.1.

The definition of the marketing concept proposed by Dibb, Simkin, Pride and Ferrell (2006) refers to the same key components as identified by Etzel et al. (2001). Dibb et al. (2006) define the marketing concept as "The philosophy that an organisation should try to provide products that satisfy consumers' needs through a coordinated set of activities that also allows the organisation to achieve its goals".

Kotler (2003: 20) has a similar view of the marketing concept as Etzel et al. (2001) and Dibb et al. (2006). Kotler (2003: 20) also identifies coordinated marketing activities as a key component to achieve the performance objectives, but goes one step further to unbundle customer orientation into two components. The first component is a target market and the second component is customer needs. According to Kotler (2003) an organisation performs best, i.e. satisfies the needs of the consumer best, when the target

market is carefully selected and tailored marketing programs are prepared in response to their needs.

FIGURE 2.1
COMPONENTS AND OUTCOMES OF THE MARKETING CONCEPT



Source: Etzel et al. (2001: 11)

2.3.2 The marketing concept in the relationship marketing era

According to Ferrell and Hartline (2008: 51), the focus of some marketing-orientated firms has shifted from customer transactions to customer relationships. In other words, the focus of marketing activities has shifted from focusing on short-term exchanges, which is part of the marketing era, to relationship marketing. Pride and Ferrell (2010: 14) describe this orientation as follows: "Implementing the marketing concept means optimising the exchange relationship: the relationship between the company's investment in customer relationships and the return generated by customers' loyalty and retention." Relationship marketing can be defined as the "long-term, mutually beneficial arrangements in which both the buyer and the seller focus on value enhancement through the creation of more satisfying exchanges." (Dibb et al., 2006: 18). The core of relationship marketing is relationships and the maintenance of relationships between the firm and actors in its micro-environment. Actors include among others suppliers, market intermediaries, the public and the customer who is the most important actor (Ravald and Grönroos, 1996).

2.4 DEFINING MARKETING

Definitions are important because they formulate meaning, describe essential qualities, and delineate the boundaries or extent of something that differentiate it from other things (Ringold and Weitz, 2007). The practical implication of an inclusive definition of marketing is two-fold. Firstly, such a definition integrates different perspectives and guides both scholars and students of marketing phenomena. Secondly, an inclusive definition of marketing can lead to clearer formulations of marketing as a managerial function and the process to be performed by firms and practicing professionals (Gundlach, 2007). Over the years marketing scholars and practitioners have presented various managerial definitions of marketing. Definitions of marketing included in recently published text books are the following:

- “The process of creating, distributing, promoting, and pricing goods, services and ideas to facilitate satisfying exchange relationships with customers and develop and maintain favourable relationships with stakeholders in a dynamic environment” (Pride and Ferrell, 2010: 4).
- “Marketing is an organisational function and a set of processes of creating, capturing, communicating and delivering value to customers and for managing relationships in ways that benefit the organisation and its stakeholders” (Grewal and Levy, 2008: 5; McDaniel, Lamb and Hair, 2008: 6).
- “Marketing is the process by which marketing companies create value for customers and build strong customer relationships in order to capture value from customers in return” (Kotler and Armstrong, 2008: 5).
- “Marketing consists of individual and organisational activities that facilitate and expedite satisfying exchange relationships in a dynamic environment through the creation, distribution, promotion and pricing of goods, services and ideas” (Dibb et al., 2006: 7).
- “Marketing is a process for understanding markets, for quantifying the present and future value required by the different groups of customers within these markets, for communicating this to all other functions with responsibility for delivering this value, and for measuring the value actually delivered. For marketing to be effective, all other functions should be ‘market driven’” (McDonald and Christopher, 2003: 526).

- “Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners and society at large” (American Marketing Association, 2012).

These six definitions are consistent in that they all state that marketing is a process and that marketing focuses primarily on the customer. However, the definitions have conceptual differences.

The first conceptual difference is that some of the definitions directly or indirectly recognise ‘value’ as a central concept in marketing. According to Zinkhan and Williams (2007: 285), the inclusion of ‘value’ into the definition addresses the pitfall of treating ideas, goods and services the same. By emphasising value, marketers are urged to consider how their particular offerings address the underlying needs and wants of buyers. According to Sheth and Uslay (2007), the merit of using ‘value’ in the definition of marketing is that it incorporates other roles of the seller, such as the role of the producer and the financier, and not only the role of a supplier. The definitions of marketing by the American Marketing Association and in Grewal and Levy (2008) clearly point out that value for customers is an important concept in marketing. On the other hand, the definition in Pride and Ferrell (2010) indirectly refers to the creating of value – “creating, distributing, promoting, and pricing goods, services and ideas to facilitate satisfying exchange relationships”. Likewise, the definition in Dibb et al. (2006) emphasises “activities that facilitate and expedite satisfying exchange relationships” which also indirectly refers to creating value for the customer.

The exchange concept is probably the most fundamental concept in marketing (Sheth and Uslay, 2007: 302). Exchange is the act of giving or taking one thing in return for another. Exchange is important in marketing as exchange is a pre-requisite for need satisfaction. A second conceptual difference between the definitions is that only some of the definitions include ‘exchange’. For example, the definition of marketing in Pride and Ferrell (2010) includes the exchange concept, whilst the definitions in Grewal and Levy (2008) and McDaniel et al. (2008) do not include the exchange concept. Since value is a necessary condition for exchange to take place, it seems that those definitions that do not include the exchange concept focus on leading indicators (like ‘value’) and not on lagging indicators (like ‘exchange’).

A third conceptual difference in the six cited definitions of marketing is that some of the definitions include ‘stakeholders’. Examples of such definitions are the definition in Pride

and Ferrell (2010) and by the American Marketing Association. According to Pride and Ferrell (2010: 10), marketers should not only focus on building relationships with customers, but they should also build relationships with other stakeholders such as employees, investors, shareholders, suppliers, governments, and many others. Building relationships with other stakeholders are important as they can influence the outcomes of the marketing strategy because they can provide or withdraw needed resources or influence customer opinion about a firm's marketing strategy and products. Zinkhan and Williams (2007: 285) add that the inclusion of 'stakeholders' in the definition enables the incorporation of a broader number of people or firms that interact with marketers or their offerings, such as policy-makers and other parties interested in the outcomes of marketing activities.

The definitions provided at the beginning of this section are all viewed as acceptable definitions of marketing. These definitions all include an element, or both elements, of the economic principle and are in line with the marketing concept as defined in the marketing era or relationship marketing era. In this study, the definition of marketing by the American Marketing Association is the preferred definition of marketing. The definition identifies marketing as an organisational function; it includes the main purpose of marketing as the creation of value for customers and recognises other stakeholders as important role players in the marketing process. Thus, in this study marketing is defined as:

Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners and society at large.

The value concept as a component of a definition of marketing is important for a number of reasons. Firstly, the basic motive of an exchange is addressed by reference to a product's reasonable or expected value (Snoj, Korda and Mumel, 2004: 156). Secondly, many authors are of the opinion that superior value should be considered as the most fundamental challenge for marketing strategies of firms (Snoj et al., 2004: 156). Thirdly, the creation of customer value is the fundamental basis for all marketing activity (Smith and Colgate, 2007: 7). Fourthly, value has a significant impact on behavioural intentions of customers (Wang, Lo, Chi and Yang, 2004). Given the importance of 'value' in marketing, the concept of 'customer value' will be explained next. After the discussion of customer value, the remainder of the chapter will focus on distribution as part of marketing and multi-channel marketing.

2.5 CUSTOMER VALUE

The term 'customer value' has many meanings, of which two dominate. The first meaning is value for the customer, also referred to as customer perceived value or customer received value. The second meaning is value to the firm, which encapsulates value of the customer and customer lifetime value (Smith and Colgate, 2007: 8). Given that the study is positioned in the marketing field of study, the former meaning of value is the relevant meaning – value for the customer. In marketing literature, various definitions of customer value are presented. In Table 2.1 some of the definitions are listed.

TABLE 2.1
DEFINITIONS OF CUSTOMER VALUE

| Definition | Source |
|--|--|
| Value is low price. Value is whatever a customer wants in a product. Value is the quality that the customer gets for the price paid. Value is what the customer gets for what he/she gives. | Zeithaml (1988: 13) |
| A trade-off between the quality or benefits buyers perceive in the product relative to the sacrifices they perceive by paying the price. | Monroe (1990) in Woodruff (1997) Dodds <i>et al.</i> (1991) in Wang <i>et al.</i> (2004: 171) |
| Product value to a consumer is a comparison of tangible and intangible benefits from the generic as well as the supplementary levels of a product and the total costs of the product and usage of the product. | Nilson (1992) in Snoj <i>et al.</i> (2004: 158) |
| The value or utility the consumers receive when purchasing product. | Peter and Olson (1993) in Ravald and Grönroos (1996: 21) |
| It is the market perceived quality adjusted for the relative price of the product. | Gale (1994) in Woodruff (1997: 142) |
| The sum of benefits received minus the costs incurred by the customer in acquiring a product or service. | Treacy and Wiersima (1995) in Khalifa (2004: 650) |

| | |
|--|----------------------|
| It is the customer's perceived preference for and evaluation of that product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations. | Woodruff (1997: 142) |
|--|----------------------|

The definitions in Table 2.1 identify the following key attributes of customer value:

- Customer value is linked to the needs and wants of customers. Zeithaml (1988) defines value as “whatever a customer wants in a product”.
- Value is a trade-off between benefits (what the customer gets) and sacrifices (what the customer gives up). For example, Monroe (1990) in Woodruff (1997) and Dodds et al. (1991) in Wang et al. (2004) articulate the trade-off as follows: “benefits buyers perceive in the product relative to the sacrifices they perceive by paying the price”.
- Value is related to a customer's perception. Woodruff (1997: 142) refers to ‘customer's perceived preference for’ and Monroe (1990) in Woodruff (1997) and Dodds et al. (1991) in (Wang et al., 2004: 171) refer to ‘the quality or benefits buyers perceive’.
- The two attributes of value are multi-dimensional constructs. Perceived benefits are a combination of different attributes of products (tangible and intangible; intrinsic and extrinsic), while perceived sacrifices are a combination of nominal price and all other costs of product acquisition and its use (Snoj et al., 2004: 158).
- The perception of value depends on the frame of reference in which the customer is making an evaluation (Zeithaml, 1988: 15). The attribute is highlighted by the definition of Woodruff (1997: 142) – “achieving the customer's goals and purposes in use situations”. Customers' value perceptions are therefore situational and influenced by the context in which the customer evaluates the value offered.

According to Smith and Colgate (2007), the types of value that a firm can create to satisfy the needs of wants of consumers can be categorised as follows:

- Functional/instrumental value. This type of value is created by the extent to which a product has characteristics desired by the customer, is useful and performs a desired function.
- Experiential/hedonic value. This is the extent to which a product creates appropriate experiences, feelings and emotions for the customer.
- Symbolic/expressive value. This type of value is concerned with the extent to which customers attach or associate psychological meaning to a product.
- Cost/sacrifice value. This is the extent to which the transaction costs are minimised.

2.6 MARKETING AND DISTRIBUTION

Marketing is a functional area activity at business-unit level and the goal of marketing is to contribute to the realisation of the objectives stated in the strategic plan of the firm (Kotler and Armstrong, 2008: 37). Marketing planning is a systematic process of assessing marketing opportunities and resources, formulating marketing objectives, defining marketing strategies and establishing guidelines for the implementation and control of the marketing program (Pride and Ferrell, 2010: 45). One of the activities in marketing planning, as indicated above, is the defining of marketing strategies. According to Lamb, Hair, McDaniel, Boshoff and Terblanche (2004: 24), the formulation of the marketing strategy involves identifying target markets, positioning of the firm and/or brands relating to competing firms and the development of a marketing mix. The marketing mix combines product, distribution, marketing communication, and pricing strategies in a way that creates exchanges that satisfy customers' and the firm's needs. Thus, a marketing strategy includes a plan of action for developing, distributing, promoting, and pricing products that meet the needs of the target market.'

In this study, considering the research question and the primary objective of the study, the distribution element of the marketing mix is of interest. The distribution element of the marketing function provides place, time and possession utility to the customer by utilising one or more distribution channel(s) (Groucutt, Leadley and Forsyth, 2004). More specifically, given that this study focuses on cross-channel cognitive evaluations, the use of different channels in the distribution of products and services is of primary interest.

2.7 DISTRIBUTION CHANNELS

Authors who write about channels of distribution from a marketing perspective often use the terms distribution and marketing channels interchangeably (Goldkuhl, 2005: 2) In this study, the term 'distribution channel' will be used. A distribution channel is a group of individuals and organisations that direct the flow of products from producers to customers within the supply chain (Pride and Ferrell, 2010: 390). The major role of distribution channels is to make products available at the right time, at the right place and in the right quantities.

In making products and services available to customers, channel members add value by bridging the major time, place, and possession gaps that separate goods and services from those who would use them (Kotler and Armstrong, 2008: 337). In other words, marketing channels create time utility, place utility, possession utility and form utility (Pride and Ferrell, 2010: 391-392). Time utility is having the products available when the customer wants them. Time utility reduces temporal uncertainty, which is created when a product is produced, but a customer is not ready to buy it (McDaniel et al., 2008: 363). Place utility is created by making the products available in locations where customers prefer to purchase them. In other words, marketing channels lower spatial discrepancy, which is created by making products available to customers at places that are not convenient for them (McDaniel et al., 2008: 363). Possession utility entails that the customer has access to the product to use or to store for future use. Members of the marketing channel can also create form utility by assembling, preparing, or otherwise refining the product to suit the individual customer needs.

Distribution channels can also create value for customers in the following ways:

- Distribution channels provide contact efficiency. Contact efficiency is created by reducing the number of stores customers must shop in to complete their purchases (McDaniel et al., 2008: 363).
- Distribution channels reduce discrepancy of assortment. Discrepancy of assortment occurs when a customer does not have all of the items needed to receive full satisfaction from a product. To overcome discrepancy of assortment, distribution channels assemble many of the product necessary to complete a customer's needed assortment in one place (McDaniel et al., 2008: 363).

- Developing and spreading persuasive information about an offer (Kotler and Armstrong, 2008: 337).
- Finding and communicating with prospective buyers (Kotler and Armstrong, 2008: 337).
- Furniture, fixtures, lighting and other decorative features and attributes of the purchasing environment contribute to functional/instrumental value by enhancing or detracting from product performances and outcomes (Smith and Colgate, 2007: 20).
- Futures and attributes of the purchasing environment like music, ambiance and atmosphere can create experiential/hedonic value through sensory, emotional and epistemic experiences (Smith and Colgate, 2007: 20).
- The purchase and consumption environment can create symbolic/expressive value (Smith and Colgate, 2007: 20).
- Intermediaries can also create functional/instrumental value by delivering correct, accurate and timely fulfilment processes (Smith and Colgate, 2007: 20).

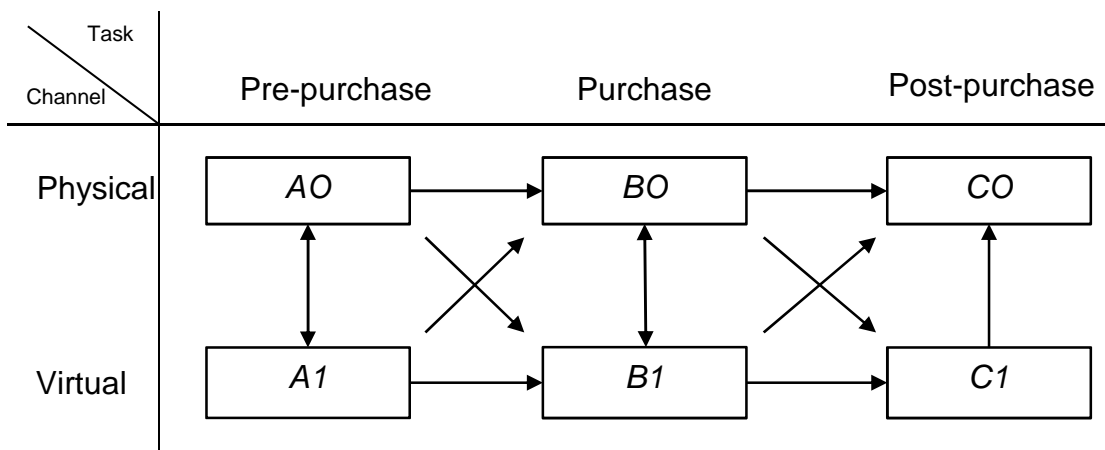
2.8 MULTI-CHANNEL MARKETING

In order for a firm to develop a distribution strategy to overcome the time, place, and possession gaps, a channel strategy must be developed. Channel strategy decisions involve the selection of the most effective distribution channel, the most appropriate level of distribution intensity and the degree of channel integration (Jobber, 2010: 632). With regard to the 'channel selection' aspect of channel strategy, firms can employ one channel or a variety of channels. As alluded to in Chapter 1, in the case where a firm has more than one channel, multi-channel marketing or multiple-channel marketing can be implemented.

Multi-channel marketing refers to a situation when customers can use different channels to interact with the firm, whilst in multiple-channel marketing, different segments of the customer base is reached through different channels. Studies on multi-channel marketing define multi-channel marketing as the integration of traditional marketing channels with the online (internet) channel (Berman and Thelen, 2004; Dennis, 2004). In the past, the only non-traditional marketing channel available to multi-channel retailers was the Internet. However, in the external business environment, several changes have taken place in

recent years (Shankar, Venkatesh, Hofacker and Naik, 2010). For example, more consumers are using mobile devices, which provide firms with a growing mass audience for mobile electronic communications and promotion. Furthermore, along with the adoption of mobile devices by consumers came the mobile lifestyle. The mobile channel has also become popular for delivering mobile electronic services; thus, presenting a mass market for executing mobile transactions. Due to these changes in the external business environment, marketers now have a new, non-traditional channel to add to the multi-channel marketing strategy – the mobile channel. Indeed, Valos (2009) reports that wireless devices in addition to web applications are the main technologies behind the growth of multi-channel marketing.

FIGURE 2.2
USE OF PHYSICAL AND VIRTUAL CHANNELS IN AN INTEGRATED CLICK-AND-MORTAR FIRM



Source: Steinfield, Bouwman and Adelaar (2002)

Figure 2.2 depicts multi-channel marketing in a business-to-consumer context (Steinfield et al., 2002). Figure 2.2 shows that buyers may move from one channel to another at different stages of a single transaction. For example, customers may collect information online (A1), pay for and pick up the product in the physical outlet (BO), and obtain after-sales support online (C1). Another example of multi-channel marketing could be that the customer gathers information online (A1), purchase the product in the physical outlet (BO) and obtain after-sales support in the physical outlet (C1). Figure 2.2 also illustrates an important concept in multi-channel marketing, namely channel integration. Berman and Thelen (2004) explain that a well-integrated multi-channel format enables consumers to

examine goods at/on one channel, buy them at/on another channel, and finally pick up the goods at/on a third channel.

An important aspect of multi-channel marketing that is not included in Figure 2.2 is that customers' channel perceptions and preferences underpin the use of a channel for a specific stage of the decision process. Customers' perceptions and preference for the use of a specific channel for a specific task can be influenced by channel attributes (Verhoef et al., 2007), the characteristics of both consumers and products (Kim and Lee, 2008), experiences in other channels (Montoya-Weiss et al., 2003), experiences in a specific channel (Neslin et al., 2006) and situational variables (Nicholson et al., 2002).

The principle of attribute-based decision making in the context of multi-channel marketing is based on the consumer's decision that one channel excels in attributes that determine search, while the other channel excels in attributes that drive purchase (Verhoef et al., 2007). For example, although the Internet is convenient to use, it is also considered risky for purchases, because of security factors or the inability to physically touch and test the product. On the other hand, consumers may consider the search for product information in retail stores laborious, but not too risky to make the final decision. Thus, a possible scenario in a multi-channel marketing context may be that customers use the Internet to search for information in the pre-purchase stage and then buy the product in the store.

Information Economics Theory differentiates between search and experience goods (Gupta, Bo-chiuan and Walter, 2004). Search goods are products whose quality can be assessed prior to purchase, whereas the quality of experience goods can only be ascertained by product use. Whilst the Internet provides a channel to easily search for products and information, anywhere and anytime; consumers assign more value to store-based retailing for purchasing experiential products - where consumers need to examine the product in person before purchasing (Kim and Lee, 2008). Thus, the type of product can influence channel preference.

Customer characteristics such as internet experience can also have a positive influence on intention to use the internet channel. Previous studies showed that internet experience has a positive, significant influence on the adoption behaviour of e-commerce services (Eastin, 2002; Liao, Chen and Yen, 2007). Moreover, the study of Nicholson et al. (2002) provides further evidence of the role of internet experience in the use of the internet channel. The results of Nicholson et al. (2002) show that internet experience moderates internet channel

usage intentions across all three stages of the purchasing process (information gathering, evaluation and purchase).

The studies of Montoya-Weiss et al. (2003) and Yang et al. (2011) demonstrate how experiences in other channels influence customers' perceptions and preferences for an alternative channel. In the study of Montoya-Weiss et al. (2003) the results of the empirical study demonstrate that the perceptions of service quality in an alternative channel has a negative influence on the use of the online channel. The study of Yang et al. (2011) demonstrates the opposite; experiences in alternative channels can also have a positive influence on perceptions of the online channel. Yang et al. (2011) found in their study that perceived offline service quality positively influences the perceptions of online service quality.

By using a specific channel, the customer also learns from and evaluates his or her experiences. These experiences serve as feedback that is incorporated in the perceptions and preferences that guide the customer's next shopping task (Neslin et al., 2006). For example, Neslin et al. (2006) argue that if the customer was not able to obtain all the necessary information during an internet search, the customer could consider using another channel for information collection with the next purchase.

Lastly, Nicholson et al. (2002) identify five situational factors that can determine channel selection. These factors are the physical setting, social setting, temporal issues, task definition and antecedent state. The results reported by Nicholson et al. (2002) show - among others - that temporal factors, which include time of day and the urgency of the purchase, exert a positive influence in the selection of the internet shopping option. On the other hand, physical (location of the store, environment in which the consumer reads a catalogue, or accesses a website, the weather or climate), social (the presence or absence of others, together with their social roles, role attributes and opportunities for interaction) and antecedent (mood) factors exert a positive influence on the selection of the store shopping option. Thus, situational factors can also play a role in the preference of a specific channel above another channel.

2.9 THE MOBILE CHANNEL COMPARED TO OTHER MARKETING CHANNELS

One of the advantages of multi-channel marketing for a retailer is the selection of channels to interact with customers based on the unique advantages of each channel (Berman and

Thelen, 2004). Therefore, to understand the mobile channel's place in multi-channel marketing, it is useful to compare the advantages of the mobile channel with the advantages of other channels (see Table 2.2).

TABLE 2.2
UNIQUE ADVANTAGES OF SPECIFIC CHANNELS

| Channel | Advantages |
|----------|--|
| Mobile | <ul style="list-style-type: none"> • Anytime, anywhere interaction with customers (Shankar et al., 2010) due to instant connectivity from the customer's side (Ko, Kim and Lee, 2009). • Instant access to customers as mobile phones is a constant companion (Shankar et al., 2010). • Businesses can include audio and visual aspects in mobile marketing (Shankar et al., 2010). • Ideal to handle customer queries regarding product information and to provide post-purchase support (Shankar et al., 2010). Businesses can offer location-based services (Barnes, 2002). |
| Internet | <p>The following advantages of the Internet are listed in Berman and Thelen (2004):</p> <ul style="list-style-type: none"> • It offers unlimited space for describing an item. • Access to a global market and to markets without retail stores. • 24/7 ordering. • No costs such as posting and reproduction associated with catalogues. • Ability to verify shipping status without customer-service personnel. • Integration of video and audio aspects in the sales presentation. • Ability to easily compare offerings of merchants, prices and product features. • Ability to customise mailings to past and ongoing customers. • Enables disabled shoppers to browse and shop in a barrier-free environment. |

| | |
|-----------|---|
| | <ul style="list-style-type: none"> • Allow retailers to stock slow-selling merchandise more effectively. • Allows retailers to carry product lines not offered in stores. • Internet sites appeals to market segments that prefer web-based shopping. • Utilises automatic interface techniques: collaborative filtering, cookies, web log analysis and real time. • Enables mass customisation. • Enables prices to be easily and quickly changed. • Allows the automation of consumption, e.g. flowers sent same day each month. |
| Store | <p>The following advantages of stores are listed in Berman and Thelen (2004):</p> <ul style="list-style-type: none"> • Immediacy - the consumer can see the item and take it home on the same trip. • There is no shipping costs for items taken home by the shopper. • The shopper can see, feel, try out, and test items as well as substitute items. • Interaction with store personnel. • Satisfies “shopping as a social activity”, which other channels cannot provide. |
| Catalogue | <p>The following advantages of catalogues are listed in Berman and Thelen (2004):</p> <ul style="list-style-type: none"> • Portability – catalogues can be read on the train, in waiting-rooms, etc. • Catalogues have a long shelf life. • The control over colour is better in a catalogue than on a website. • Access to a global market and to markets without retail stores. • 24/7 ordering capability. • Transferable and shareable among customers. • Satisfies more sensory needs (visual and smell) than the Internet. |

| | |
|-------|--|
| Kiosk | <p>The following advantages of a kiosk are listed in Berman and Thelen (2004):</p> <ul style="list-style-type: none"> • It can reach customers without web access. • In-store kiosks can enable retailers to avoid lost sales due to out-of-stock situations. • High levels of video/audio quality. |
|-------|--|

As can be seen from Table 2.2, the most unique advantages of the mobile channel, in comparison to other channels, is the ubiquity – anywhere, anytime interaction with customers and location-based services. Location-based services such as location-based advertising is brought about by the convergence of mobile communications and positioning technologies and presents a new opportunity for marketers to deliver advertisements, promotions, coupons and other offers that are uniquely customised to an individual's tastes, geographical locations and time of day (Xu, Oh and Teo, 2009). Thus, wireless devices such as mobile phones provide a channel for advertising that offers unique characteristics unavailable in traditional and other electronic media.

Although the mobile channel offers unique advantages to multi-channel retailers, there are also several factors could inhibit the adoption of the mobile channel by consumers. According to Shankar et al. (2010), three specific factors act as inhibitors to adoption of the mobile channel by consumers. These factors are consumers' general resistance to adopt new technology (inertia), economic barriers such as limited disposable income and consumers' lack of understanding of the benefits of mobile offers.

According to Kleijnen, de Ruyter and Wetzels (2007) two other factors that can negatively influence the perceived value of mobile channel usage are perceived risk and cognitive effort. Kleijnen et al. (2007) point out that risk is a major factor in the mobile environment, because the allocation of responsibility for a failure or loss may not always be clear in the mobile environment. Moreover, Kleijnen et al. (2007) also point out that consumers may be very sensitive with regard to any service that involves monetary transactions, in which case they are concerned about both money and information lost. Therefore, it is reasonable to argue that risk perceptions regarding monetary transactions should also be applicable to mobile transactions. Indeed, the study of Wu and Wang (2005) provide empirical evidence that the perceived risk of mobile commerce negatively influences intention to use mobile commerce. Cognitive effort, the second barrier identified by

Kleijnen et al. (2007), arises from the complexity of innovation characteristics and involves the difficulty in understanding the mobile service process. In other words, cognitive effort represents the ease of use of learning how to use a new technology. Mobile marketing requires (in some situations) more cognitive effort than other forms of marketing. For example, SMS advertising requires more cognitive effort compared with TV or magazine advertising due to the technical and interactive characteristics of the mobile environment (Zhang and Mao, 2008). With SMS advertising, consumers need to check and gain access to an SMS ad by first manoeuvring through menus, and then read and understand the message. Once consumers have done this, then they can make a quick evaluation whether it is worth the time and/or effort to take action – e.g. providing their comments on the products. Likewise, mobile couponing may also require more cognitive effort (Dickinger and Kleijnen, 2008). Considering that in using traditional media consumers only have to cut out the coupon and redeem it at the store, it can be argued that the redemption of coupons obtained in traditional media do not require any cognitive effort. However, the use of the mobile medium for couponing might challenge the consumers' skills in dealing with the functionality of the mobile phone in the redemption process (Dickinger and Kleijnen, 2008).

Another factor that could also be a barrier to the adoption of the mobile channel by consumers is the cost of using services related to mobile marketing. According to Wu and Wang (2005) the transitioning from wired electronic commerce to mobile commerce implies additional expenses for consumers. These expenses are equipment costs, access cost and transaction fees that could make mobile commerce use more expensive than wired electronic commerce. These costs could play such a major role in consumers' evaluation of the mobile channel in that it can erode the benefit of certain unique advantages of the mobile channel for marketers. For example, in the study of Ko et al. (2009) it was found that instant connectivity (one of the unique features of mobile marketing) has a significant negative influence on the perceived value of mobile shopping. Ko et al. (2009) argue that this result may be due to the expensive additional fees customers must incur to access and use real-time information provided by mobile companies.

2.10 CHALLENGES IN MULTI-CHANNEL CUSTOMER MANAGEMENT

Multi-channel customer management "is the design, deployment, coordination, and evaluation of channels through which firms and customers interact, with the goal of

enhancing customer value through effective customer acquisition, retention and development” (Neslin et al., 2006). Thus, in the context of multi-channel marketing, multi-channel customer management is an important aspect. Neslin et al. (2006) identify five key challenges for firms implementing multi-channel customer management. These key challenges are:

- Data integration across channels. The challenge for firms is to deliver complete data integration (CDI), or an integrated, single view of the customer across channels. The ideal for a business would be to develop a database with information on which channel(s) each customer accessed during each stage of the customer decision process, as well as competitors' channels. By tracking customer behaviour across channels, firms can gain a better understanding of customer behaviour across channels and develop a basis for creating strong relationships with customers and improving retention (Rangaswamy and Van Bruggen, 2005: 6).
- Understanding customer behaviour in a multichannel environment. Marketing managers need to understand how customers choose channels and what impact that choice has on their overall buying patterns. Thus, key questions pertaining to channel choice for multi-channel marketers are: What determines channel choice? What channel attributes are important? Is a multi-channel approach a means to segment customers? Do customers make channel decisions according to the channel or the firm? What is the impact of the multi-channel environment on customer loyalty? and Does a multi-channel strategy grow sales for the firm?.
- Channel evaluation. Channel evaluation entails gaining an understanding of what the contribution of an additional channel will be to the firm in terms of sales and profits, as well as the contribution of each existing channel. The latter could be difficult to assess when the contribution of a channel emerges during the search phase and the firm lacks an integrated database of search and purchase across customers. Lastly, with regard to channel evaluation, marketing managers also need to understand which channels synergise best with other channels.
- Allocation of resources across channels. The optimal channel mix must be developed and appropriate resources should be allocated across channels. Key questions related to the allocation of resources across channels are: How much should be spend on designing and developing each channel? Should advertising and promotional activities be designed to drive customers to specific channels or

not? and Should the firm offer the same channels as competitors or differentiate on channel strategies?

- Coordinating channel strategies. To coordinate channel strategies in terms of objectives, design, and deployment to create synergies can be a difficult task. To address this challenge, multi-channel marketers must answer questions such as: Should the channels be independent or integrated? Which aspects of channel design should be integrated? How can the firm design synergies in its channel strategy? Should channels be designed around segments or functions? How will the research shopper phenomenon be managed? and How should firms manage their relationships with channel partners when applying a multi-channel strategy?

2.11 SUMMARY

The focal point of all marketing activities is consumers. In order for firms to satisfy the needs and wants of consumers, they endeavour to deliver value to consumers through specific marketing activities that also exceed the value offered by competitors. In the endeavour to deliver unique, need and want satisfying value, firms can pursue a multi-channel strategy which will enable customers to shop in integrated marketing channels that are consistent with the preferences and perceptions of the customer. In addition to traditional marketing channels, firms can also incorporate non-traditional channels such as the internet and the mobile channel. The mobile channel is a relative new channel that offers unique advantages to marketers such as real ubiquity and location-based services that deliver personalised content to users.

In the context of this study, the chapter does not only explain what marketing is, but also delineates an important concept in this study - multi-channel marketing. This is achieved by describing how distribution channels add value in the marketing process, what multi-channel marketing is and how different channels can be used to address the needs of consumers.

In this chapter, the internet channel and the mobile channel were the two non-traditional channels in the discussion of multi-channel marketing. Given that the primary objective of the study is to determine the influence of internet banking cognitive evaluations on the formation of intention to use and continuance use intention of cellphone banking, a further discussion of the internet and the mobile channel is necessary in the context of the study.

herefore, in the next chapter the discussion of the internet and mobile channel will be extended to a more detailed discussion on internet and cellphone banking.

CHAPTER 3

AN OVERVIEW OF INTERNET AND CELLPHONE BANKING

3.1 INTRODUCTION

In Chapter 1, the benefits of the concurrent use of internet and cellphone banking by bank clients were argued considering the advantages associated with multi-channel marketing. However, the adoption and the continued use of cellphone banking by users of internet banking also has another important benefit for banks in that it enables a bank to recoup investments in the development and the marketing of this e-service.

When a firm adopts the marketing concept, the primary philosophy underpinning the business strategy is that satisfying customers' needs and wants is the primary goal of the firm. Therefore, the role of the marketing function in a bank is to satisfy the needs and wants of clients better than competitors by creating, capturing, communicating and delivering value to clients. By offering internet and cellphone banking to clients and encouraging the adoption and the continuous use of cellphone banking among the users of internet banking, banks attempt to meet the needs and wants of clients. Given the stated importance of the marketing function in a bank, the purpose of this chapter is to explore the utilisation of internet banking and cellphone banking services.

To realise the purpose of the chapter, separate overviews will be presented for internet banking and cellphone banking. For each electronic self-service the adoption of the self-service by clients of South African banks will be reported. Next, the different types of each self-service will be discussed. This will be followed by discussing the main benefits and services of each self-service.

3.2 INTERNET AND CELLPHONE BANKING

The term electronic banking (e-banking) often refers to online/internet banking (Karjaluoto, Mattila and Pento, 2002: 261). However, e-banking is an 'upper-level construct' that consists of various formats of technologies including telephone (both landline and cellphone) banking, direct bill payment, electronic fund transfer and online (internet) banking (Lassar et al., 2005: 117; Wang et al., 2003: 502). Thus, internet banking and cellphone banking are both subsets of e-banking.

3.2.1 Internet banking

In Chapter 1, internet banking was defined as an electronic banking system that allows clients to perform a wide range of banking transactions electronically via the bank's website, by using a computer and a modem to connect to the Internet. In Chapter 2, the role of value in facilitating exchanges between the firm and customers was pointed out. The value of internet banking for clients can be considered by identifying the main benefits of internet banking for clients. In this section, the main benefits of internet banking will be identified from the information on banks' websites and a review of internet banking literature. The scope of internet banking services will be demarcated by generating a list of the main internet banking services listed on the websites of the 'Big Four' South African banks (ABSA, First National Bank, Nedbank and Standard Bank).

3.2.1.1 *The growth of internet banking in South Africa*

South Africa's banks started operating on the Internet in 1996. ABSA was the first South African bank to offer limited transactions online in late 1996 and was followed by Nedbank who offered a full-service early in 1997. By July 1997, Standard Bank and First National Bank (FNB) had added their working sites to the web and in August 1997 Mercantile Bank joined the on-line banking community (Gordon, 1997).

Initially, the growth of internet banking in South Africa was slow. By 2002, only 670 000 bank clients were users of internet banking. In 2003, the number of clients using internet banking increased to 1.04 million accounts and it was expected to grow by more than 30 percent during 2004 (Anonymous, 2004). By the end of 2005, the number of internet bankers in South Africa totalled approximately 1 625 000. According to Whitfield (2005), ABSA had 600 000 internet banking users at the end of 2005 - which was meaningfully more than the 416 400 registered users at the end of 2004 (Anonymous, 2005). By 2005, Standard Bank reportedly had an internet banking user base of 434 000 internet banking subscribers (Whitfield, 2005), whilst FNB had approximately 109 000 subscribers (First Rand, 2005). Nedbank experienced limited growth in 2005. Their number of internet banking users increased from 176 800 at the end of 2004 to 200 000 in 2005 (Whitfield, 2005). By the end of 2008 approximately 2.4 million bank clients were using online banking (Naidu, 2008). The adoption of internet banking increased sharply in 2009. Abrahams and Goldstuck (2009: 15) report that at the end of 2009, approximately 4.6 million South African bank clients were banking online. This is an increase of 2.2 million

internet banking users in 2009. These statistics demonstrate the trend at which South African bank clients are increasingly adopting internet banking as a way of conducting bank transactions.

3.2.1.2 *Types of internet banking*

Natha, Shenoy and Suleman (2001) define internet banking as a distinct subset of electronic/online banking, which can be more broadly defined as the provision of retail and small value-added banking products and services through electronic channels. This definition of internet banking includes several different forms of internet banking. The different types of internet banking are:

- Internet banking which makes use of a bank's proprietary software. This form of online banking uses the bank as an "electronic gateway" to clients' account. Clients install this software on their home computers to enable them to transfer funds and pay bills electronically.
- Internet banking via personal computers using dial-up software. In this case, clients make use of home finance software to link to banks for online banking. Examples of such software include Intuit's Quicken and Microsoft's Money.
- Internet banking via online services. Banks set up retail branches on subscriber-based online services such as America Online.
- Internet banking via the World Wide Web. This form of online banking bypasses subscription based services and allows banks to interact directly with their clients through the World Wide Web. This is the type of internet banking currently offered by South African banks.

3.2.1.3 *Benefits of internet banking*

Internet banking offers a number of benefits to bank clients. Table 3.1 lists the main benefits of internet banking summarised from the websites of the 'Big Four' South African banks, as well in other publications. Convenience, in terms of anywhere, anytime banking is the benefit most promoted by the 'Big Four' on their websites and very often emphasised in internet banking related studies. Other benefits listed on the websites are: a safe and secure environment, real-time account information, access to account

information, cost-effectiveness, management of personal finances, time saving, ease of use and a full service with comprehensive functionality.

Currently, all four banks promote 'safe and secure environment' as a benefit to users. Generally, security is a concern in e-commerce business-to-consumer transactions and internet banking. The rationale behind promoting the 'safe and secure environment' is probably to address the existing negative perception among South African internet users regarding the security of personal information when using the Internet, especially for internet banking.

TABLE 3.1
MAIN BENEFITS OF INTERNET BANKING

| Benefits | References | ABSA* | Standard Bank** | Nedbank*** | FNB**** |
|--|--|--------------|------------------------|-------------------|----------------|
| Convenience (including 24/7 access from anywhere) | Cheng, Lam and Yeung (2006) Lassar et al. (2005) Jaruwachirathanakul and Fink (2005) Karjaluoto et al. (2002) | x | x | x | x |
| Safe and secure environment | Hoppe, Newman and Mugeru (2001) | x | x | x | x |
| Real-time account info | Tan and Teo (2000) | x | | | |
| Cost-effective | Jaruwachirathanakul and Fink (2005) Lee and Lee (2001) Cook (2001) | | | | x |

| | | | | | |
|--|--|---|---|---|---|
| Management of personal finances | Lee and Lee (2001) | x | | | |
| Access to account information | Jaruwachirathanakul and Fink (2005) Lee and Lee (2001) | x | x | x | |
| Easy to use | | x | x | | x |
| Full service – comprehensive functionality | | | | x | |
| Time saving | Jaruwachirathanakul and Fink (2005) Hoppe et al. (2001) Tan and Teo (2000) | | | x | x |

Sources: * ABSA (2012b), Standard Bank (2012b), ***Nedbank (2012b) and ****First National Bank (2012c)

Since the introduction of internet banking, internet banking services have evolved to provide clients with a full range of services. Table 3.2 provides a combined list of main internet banking services offered by the 'Big Four' South African banks. The list was compiled by summarising the information published on the banks' websites.

According to Table 3.2, the main types of internet banking services are checking balances and statements, payment to beneficiaries, payment notifications, purchase of prepaid services, and transfer of funds between accounts. By utilising internet banking clients can also do account management activities such as updating personal information or they can use internet banking to apply for bank products online. Furthermore, internet banking also delivers convenience by allowing clients easy access to information on investments, the online trading of shares and the payment of UIF and personal tax.

TABLE 3.2
INTERNET BANKING SERVICES

| Service | ABSA* | Standard Bank** | Nedbank*** | FNB**** |
|-----------------------------------|--------------|------------------------|-------------------|----------------|
| Account maintenance | x | x | x | x |
| Account statements | x | x | x | x |
| Balance enquiries | x | x | x | x |
| Buying of prepaid services | x | x | x | x |
| Electronic transfer of funds | x | x | x | x |
| Making UIF payments | x | | | |
| Making SARS payments | x | x | x | |
| Managing of investments with bank | x | x | | |
| Online share trading | x | x | | |
| Open accounts | x | x | | |
| Pay traffic fines online | x | x | | |
| Payment of beneficiaries | x | x | x | x |
| Payment notifications | x | x | x | x |
| Personal loan application | x | | | |

Sources: *ABSA (2012b), **Standard Bank (2012b), ***Nedbank (2012b) and First National Bank (2012c)

From Table 3.2 it is clear that internet banking offers a wide range of services to bank clients that enhance the perceived value of this e-banking service. These services delivered by internet banking support the benefits of internet banking such as real-time account information, time saving, management of personal finances and access to account information.

3.2.2 Cellphone banking

Cellphone banking is not only part of the upper level construct 'e-banking', but also part of the upper level construct 'mobile commerce' or 'm-commerce', which can be defined as "the use of mobile hand-held devices to communicate, inform, transact and entertain using text and data via connection to public and private networks" (Saljoughi, 2002: 12). This definition focuses on an important characteristic of cellphone banking that differentiates it from internet banking; namely, at least one part of the transaction is conducted via a mobile device, generally a mobile telephone (Mallat, 2004: 2). In Chapter 1, cellphone banking was defined as the delivery of financial services with mobile devices such as cellular phones and portable data assistants or PDA (Cho and Jung, 2005).

In order to provide a more comprehensive description of cellphone banking in South Africa, the discussion in this section starts also with an overview of the growth of cellphone banking. Next, the types of cellphone banking are discussed, followed by a summary of the main benefits of cellphone banking and a demarcation of the scope of cellphone banking services.

3.2.2.1 *Growth of cellphone banking in South Africa*

Although cell phone telephony was launched in South Africa in 1994 (Anonymous, No date-b), ABSA was the first bank in South Africa to launch cellphone banking in 2000 (IT Online, 2009). Statistics on the adoption of cellphone banking suggest that the initial adoption of cellphone banking by clients were slow. In 2008, eight years after launching their cellphone banking service, ABSA only had 630 000 cellphone banking clients, while FNB had 700 000 cellphone bankers (Naidu, 2008). In 2009, ABSA succeeded in developing a cellphone banking user base of 1 million subscribers (IT Online, 2009). From 2009 onwards it appears that the adoption rate increased significantly. In July 2010 it was reported that ABSA had 2 million cellphone banking users, whilst FNB had nearly 2 million active cellphone banking users. More recent information on cellphone banking confirm the growth trend of cellphone banking adoption. In 2011, Kamhunga (2011) reported that FNB had around 2.8 million cellphone banking users and ABSA 2.7 million cellphone banking clients. Nedbank and Standard Bank had 300 000 and 250 000 active users of cellphone banking in 2011 respectively.

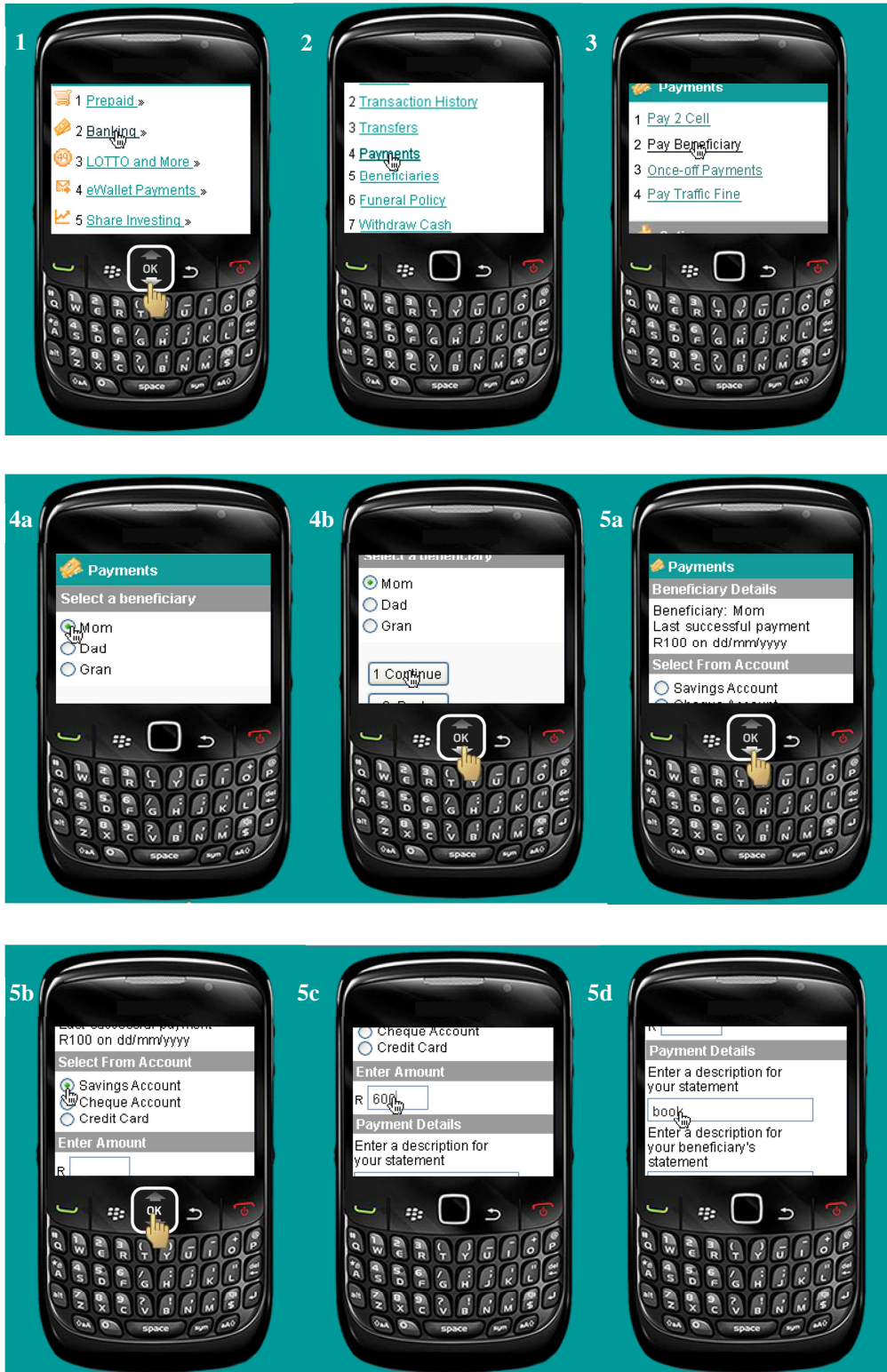
3.2.2.2 *Types of cellphone banking*

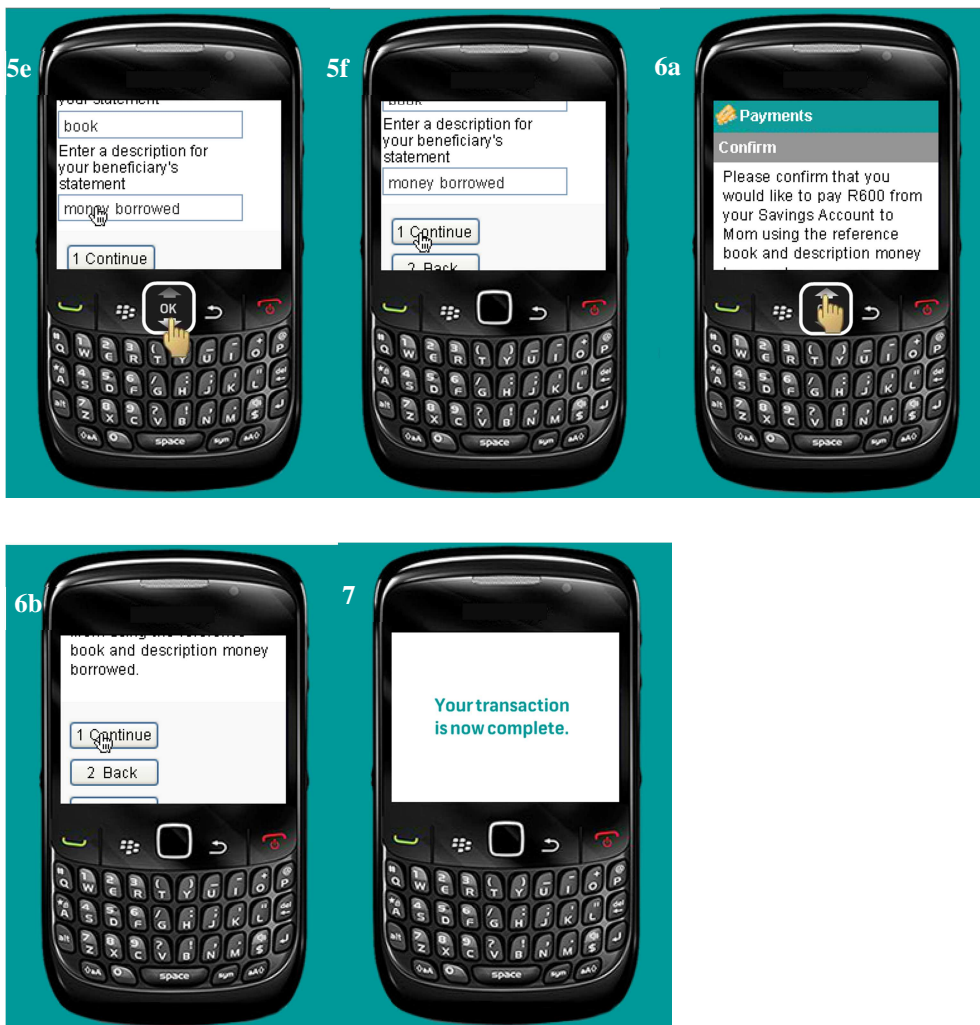
Until recently, there were only three main types of cellphone banking, namely Wireless Application Protocol (WAP) and Wireless Internet Gateway (WIG) cellphone banking. Wireless Application Protocol (WAP) is an open, global standard enabling mobile devices to connect to the internet and it is compatible with the majority of bearer networks (e.g. CDMA, GSM and next-generation network standards). WAP allows the use of Wireless Mark-up Language (WML), a stripped-down version of HTML, to build platform-independent wireless applications. In a typical WAP solution, data packets from a wireless device pass along a wireless network in WML format to the WAP server/gateway. The essential data is then reconfigured and passed to a standard HTML-capable web server (Anonymous, 2009). WAP cellphone banking delivers an experience very similar to

internet banking on a mobile phone (Nedbank, 2012a). On the other hand, WIG cellphone banking is enabled by storing the banking application on the SIM card or Universal Subscriber Identity Module (USIM) that provides additional menu options. WIG works similarly to being connected to the Internet with the exception that information is transmitted via SMS (Ward and Lewandowska, 2008). Hence, it is understandable why WIG cellphone banking is also referred to as SMS cellphone banking. WIG cellphone banking is offered by banks such as ABSA and Nedbank. FNB uses the Unstructured Supplementary Services Data (USSD) with an SMS approach. USSD is a technology similar to SMS. USSD is present on all the South African GSM (global system for mobile communications) networks. It is more secure than SMS as it does not store any typed information on the cellphone. USSD cellphone banking is session-based, which means that in each session, a user will be validated and transactional information can be saved (Anonymous, No date-d).

Figure 3.1 and Figure 3.2 illustrate the process of paying a beneficiary by means of WAP cellphone banking and USSD cellphone banking. It is interesting to note from Figure 3.1 and Figure 3.2 that it takes six screens to complete the payment of a beneficiary by means of WAP cellphone banking, while it takes 14 screens to complete the payment of a beneficiary with USSD cellphone banking. The difference in the number of screens is because using WAP cellphone banking, a client can scroll up and down the screen allowing the client to select more options or enter more information on one screen (see screen shots 5a to 5f in Figure 3.1). In screen shots 5a and 5b the client selects the account from which the beneficiary will be paid. He/she then scrolls down to enter the amount (see screen shot 5c). The client then scrolls further down the mobile page to enter the description on his/her bank account, the description on the beneficiary's account and to select the continue option (see screen shots 5d, 5e and 5f respectively in Figure 3.1). As can be seen from Figure 3.1, the screen navigation and information input options of WAP cellphone banking are very similar to scrolling up and down on a web page or entering information on an internet banking site. Hence, it is understandable that WAP cellphone banking is considered to be very similar to internet banking.

FIGURE 3.1
SCREEN SHOTS OF FNB WAP CELLPHONE BANKING USED TO PAY A BENEFICIARY

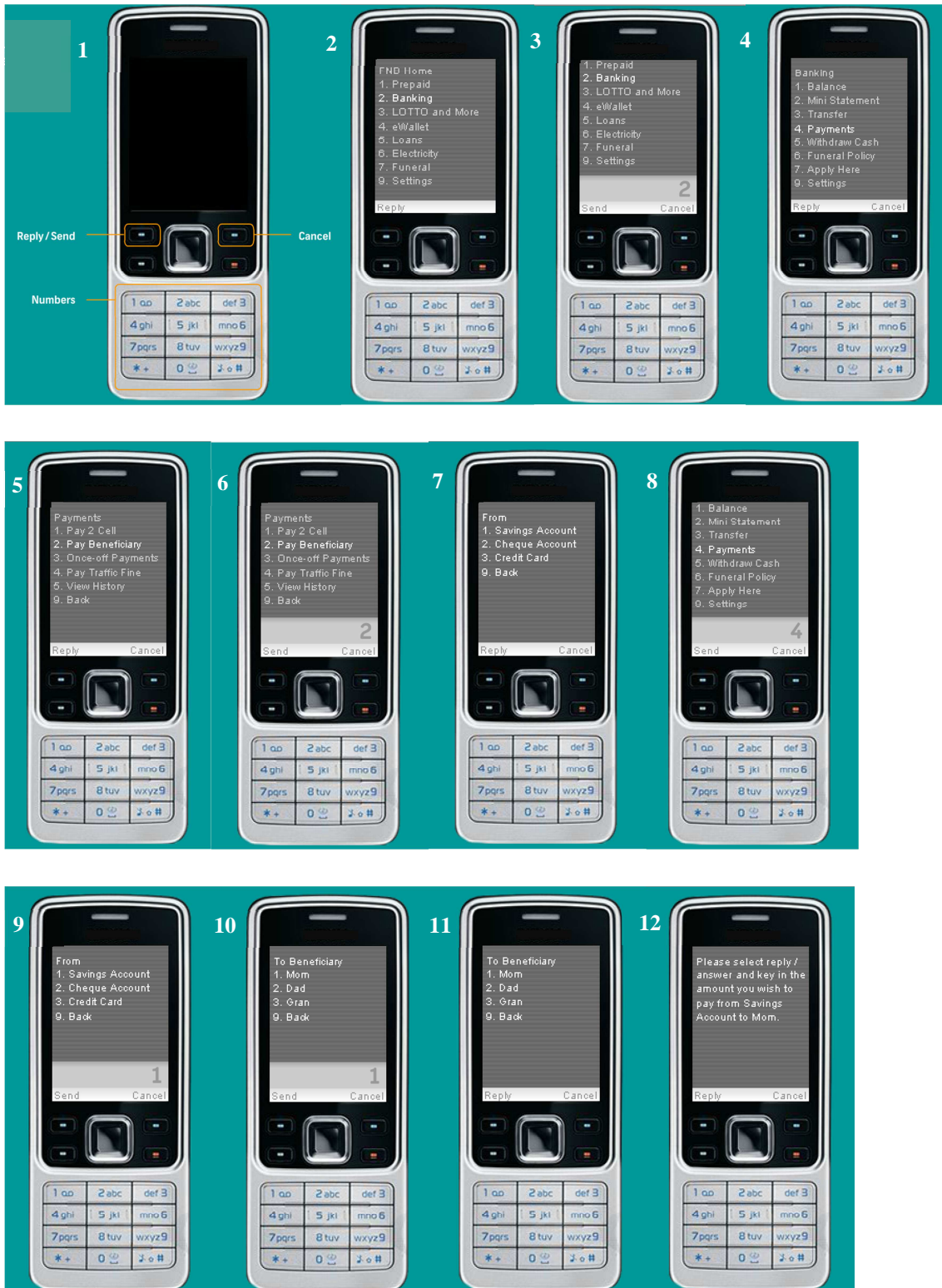


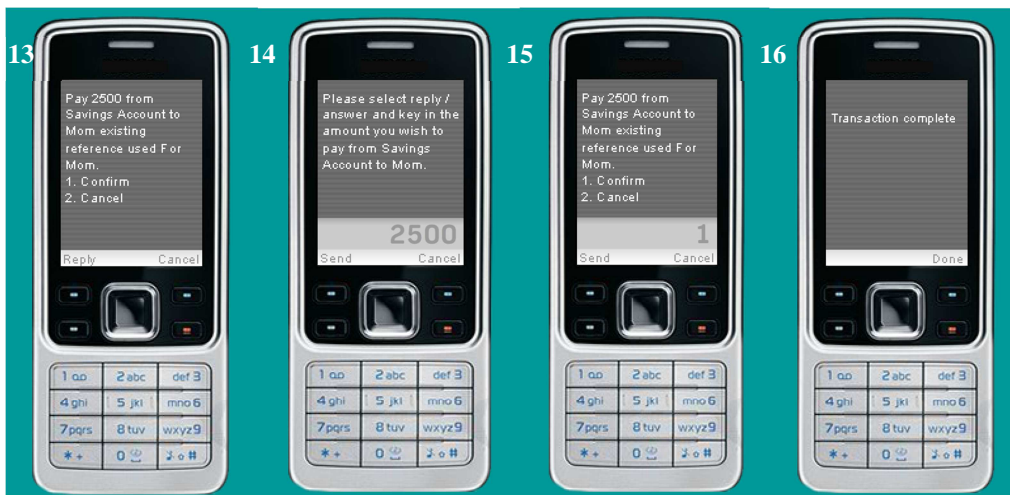


Source: First National Bank (2012b)

USSD cellphone banking requires more screens as clients first need to select *Reply* before selecting an option on the screen. For example, in screen shot 2 the customer has to select *Reply* before he/she can select the type of cellphone banking transaction (see screen shot 3 in Figure 3.2). In screen shot 3 the client enters 2 and then selects *Send* to complete this step of the transaction. Thus, in USSD cellphone banking a client cannot select multiple options on a single screen, nor can he/she enter information in more than one field.

FIGURE 3.2
SCREEN SHOTS OF FNB USSD CELLPHONE BANKING USED TO PAY A BENEFICIARY





Source: First National Bank (2012b)

The advances in cellular phone technology, especially the development and wide acceptance of smartphones, have brought about a new type of cellphone banking – cellphone banking supported by mobile applications. Smartphones are mobile telephone devices with advanced information processing capabilities, often with computer-like functionality (Pitt, Parent, Junglas, Chan and Spyropoulou, 2011: 28). According to Pitt et al. (2011), general consensus exists that a smartphone is more than a simple mobile or cellular phone. Smartphones do not only offer call-making and call-receiving capability and text messaging like a cellular phone, but via smartphones the user can also send and receive emails and access the Internet. Smartphones often has other capabilities such as a camera and a large extendable data storage capacity and are also programmable. Smartphones have also created a new market; namely, mobile applications (Pitt et al., 2011) which are generally referred to as software systems operating on mobile devices, are evolving rapidly, making ubiquitous information access at anytime and anywhere a true reality (Zhang and Adipat, 2005: 294).

There are two types of mobile applications: mobile-friendly web applications that can be used on any smartphone or operating system, or native mobile applications. Native mobile applications are applications that are installed directly on smartphone devices, whilst mobile-friendly web applications are web applications that are easily viewable and usable on a smartphone (Marsigila, 2010). Native mobile applications are also *de facto* to a certain class of device (Frederick and Lal, 2009). The advantages of native mobile applications are amongst others that native applications deliver an enhanced customer experience because they are generally faster than web applications and are more fun to use. In other words, there is a *cool factor* to native applications and native applications can

be used even when the user is offline (Marsigila, 2010). Unfortunately, native mobile applications also have two disadvantages. Firstly, each application is unique to its platform. Thus, a native application must be developed for Nokia smartphones, Blackberry phones, Andriod phones, etc. Secondly, when a new version of an existing native application is released, the users of the native application will need to download and install the update. However, because users are not forced to update the application, multiple versions of the application may be in production (Marsigila, 2010). On the other hand, mobile-friendly web applications can reach everyone and there is only one version in use, while the disadvantages are that mobile-friendly web applications are not so trendy, the user must be online and the application may not be optimal for the design of the smartphone (Marsigila, 2010).

Recently, FNB became the first South African bank to offer cellphone banking applications for smartphones (Alfreds, 2011). The FNB cellphone banking application *Geo payments* are available for Nokia, Blackberry, Apple and Android phones. The Geo payments application offers cellphone banking services such as payment of beneficiaries and buying of pre-paid products. Geo Payments also offers a location-based payment functionality. With the Geo payments location-based payment functionality FNB clients can make payments to other FNB clients as well as non-FNB clients who are nearby, without having to enter the recipients account details.

3.2.2.3 Benefits of cellphone banking

As can be seen from Table 3.3, cellphone banking offers benefits very similar to internet banking. All of the 'Big Four' banks promote convenience, while Nedbank also emphasises 'ease of use' as a main benefit of cellphone banking. Cost-effectiveness is promoted by Standard Bank, because of the free cellphone banking services that they offer to clients. In addition to these benefits, ABSA also focuses on time saving as a benefit and Standard Bank promotes a 'safe and secure environment'.

TABLE 3.3
MAIN BENEFITS OF CELLPHONE BANKING

| Advantage | References | ABSA* | Standard Bank** | Nedbank*** | FNB** |
|--|--|--------------|------------------------|-------------------|--------------|
| Convenience (including 24/7 access from anywhere) | Zarifopoulos and Economides (2009) Yang (2009) Gimun, BongSik and Ho Geun (2009) Mallat, Rossi and Tuunainen (2004) | x | x | x | x |
| Easy to use | Laukkanen and Lauronen (2005) | | | x | |
| Cost-effective | Laukkanen and Lauronen (2005) | | x | | |
| Safe and secure environment | | | | x | |
| Time saving | | x | | | |

Sources: *ABSA (2012a), **Standard Bank (2012a), Nedbank (2012a) and First National Bank (2012a).

3.2.2.4 Cellphone banking services

A variety of cellphone banking services are offered by the 'Big Four' (see Table 3.4 for a list of the main cellphone banking services). Cellphone banking subscribers can do account payments, inter-account transfers, buy prepaid airtime, view account balances and statements, and even pay Lotto tickets. These services underpin the convenience of cellphone banking.

TABLE 3.4
CELLPHONE BANKING SERVICES

| Service | ABSA* | Standard Bank** | Nedbank*** | FNB**** |
|--------------------------------------|--------------|------------------------|-------------------|----------------|
| Account statements | x | x | x | x |
| Balance enquiries | x | x | x | x |
| Buy Lotto | | | | x |
| Buying of prepaid services (airtime) | x | x | x | x |
| Cash withdrawal at ATM | | | | x |
| Electronic transfer of funds | x | x | x | x |
| Making UIF payments | | | x | |
| Making SARS payments | | | x | |
| Pay traffic fines online | x | | | x |
| Payment of beneficiaries | x | x | x | |
| Payment notifications | | | | |
| Personal loan application | x | | | |

Sources: *ABSA (2012a), **Standard Bank (2012a), Nedbank (2012a) and First National Bank (2012a).

3.3 SUMMARY

This chapter provided a more profound understanding of the two electronic bank channels which are the focus of the study. In the chapter each of the two channels was defined, benefits were listed, as well as a summary of the services offered in each channel was presented. The overview of internet banking and cellphone banking in this chapter demonstrated that the value of internet and cellphone banking for bank clients is embedded in the benefits offered and the scope of banking transactions that can be conducted through each of the two electronic self-services. The information presented on internet and cellphone banking also supports the notion that internet and cellphone banking are concurrent channels because the two channels deliver similar value and offer very similar services to individual clients of banks.

In Chapter 1 the importance of understanding consumer behaviour in multi-channel marketing was pointed out – “Understanding consumer behaviour is the primary point of

departure for effective marketing, as well as for effective multi-channel marketing". Therefore, the aim of the next chapter is to provide an overview of consumer behaviour theories that could provide insights into the adoption and continuance of use intention of concurrent electronic channels.

CHAPTER 4

CONSUMER BEHAVIOUR THEORIES UNDERPINNING THE ADOPTION AND THE CONTINUED USE OF CONCURRENT ELECTRONIC CHANNELS

4.1 INTRODUCTION

Marketing managers of cellphone banking services face a number of challenges related to the adoption and the continued use of cellphone banking. Firstly, the adoption rate of cellphone banking remains low. Hence, their first challenge is to increase the adoption rate of cellphone banking by implementing specific marketing activities. Secondly, once the adoption challenge is overcome, the next challenge is to maintain the continuance of use of cellphone banking by adopters. And thirdly, the ideal situation for banks is the concurrent use of internet and cellphone banking by clients.

This study focuses on all three challenges – encouraging the adoption and the continued use of cellphone banking by bank clients using internet banking. In Chapter 1 it was pointed out that understanding consumer behaviour is the primary point of departure for effective multi-channel marketing. Against this background, this chapter reviews several consumer behaviour theories related to (a) the adoption and the continuance use of electronic self-services and (b) how consumers evaluate electronic channels in the context of alternative channels.

The technology adoption theories that will be reviewed in this chapter are Innovation Diffusion Theory, Theory of Reasoned Action, (Decomposed) Theory of Planned Behaviour, Technology Acceptance Model and the Technology Cluster Theory. The review of these theories will be followed by a brief discussion of selected studies to demonstrate the use of these theories to explain the adoption and the continued use of electronic channels. To provide an understanding of consumers' formation of cross-channel cognitive evaluations, Expectation-transfer Theory and the theory of Status quo bias will be presented as the main theories underlying cross-channel cognitive evaluations of bank clients.

4.2 CONSUMER BEHAVIOUR THEORIES

The discussion in Chapter 3 on the advantages and scope of internet and cellphone banking services revealed how banks use electronic networks such as the Internet and cellphone networks to create value for clients. In this section, the focus will be on various consumer behaviour theories that can be applied to internet and cellphone banking to understand user adoption and continued use. In the discussion of the constructs in each theory, constructs will be given in lower case, given the repetitiveness of their use.

4.2.1 Innovation Diffusion Theory

The Innovation Diffusion Theory (IDT) has been used extensively in information technology (IT) and information systems (IS) research (Tung, Chang and Chou, 2008). According to the IDT certain characteristics of an innovation, as perceived by individuals, explain the rate of adoption. These characteristics are the following (Rogers, 2003: 15-16):

- Relative advantage. This is the degree to which an innovation is perceived as being superior to the idea it supercedes. According to Rogers (2003) the perceived advantage is more influential in the adoption stage than the objective advantage.
- Compatibility. This is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters.
- Complexity. The degree to which an innovation is perceived as being difficult to understand and/or to use.
- Trialability. The degree to which an innovation may be experimented with on a limited basis. An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing.
- Observability. This is the degree to which the results of an innovation are visible to others.

In addition to the characteristics of an innovation proposed by Rogers (2003) that influence its diffusion, Moore and Benbasat (1991) identified two additional characteristics. These two characteristics are:

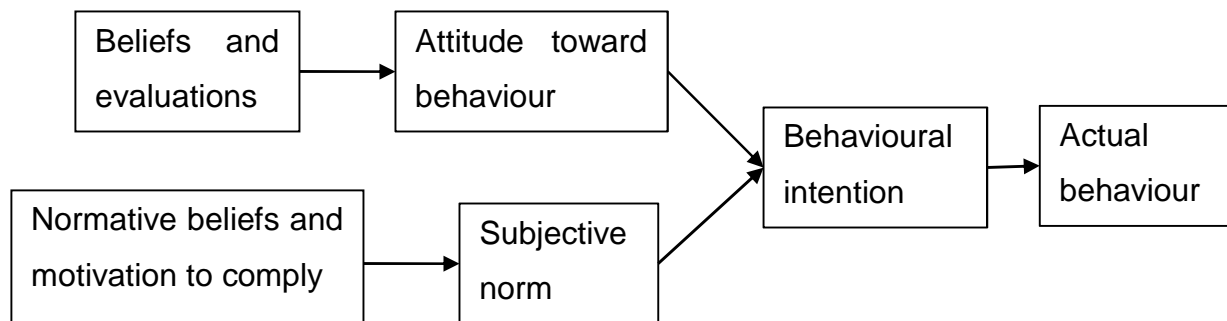
- Image. The degree to which an innovation is perceived to improve the user's image or status in a given social system.
- Voluntariness of use. The degree that an innovation is perceived as being voluntary or an act of free will.

It can therefore be anticipated that innovations that are perceived by individuals as being superior to its predecessor(s), compatible with past experiences, needs and values of the user, easy to use, easy to trail use and to observe, offers an image advantage and the adoption is an act of free will, will be adopted more rapidly than other innovations.

4.2.2 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was introduced by Fishbein and Ajzen (1975) in order to understand behavioural intention. According to the TRA, a consumer's behaviour is determined by his/her behavioural intention which is a function of 'attitude towards the behaviour' and the 'subjective norm' (Hansen, Jensen and Solgaard, 2004: 540) (see Figure 4.1).

FIGURE 4.1
THEORY OF REASONED ACTION



Source: Davis, Bagozzi and Warshaw (1989: 984)

'Attitude toward behaviour' can be defined as "the degree of an individual's positive and negative feelings towards the particular object or towards the intention of performing the particular behaviour" (Ramayah, Rouibah, Gopi and Rangel, 2009a: 4). Subjective norm can be defined as 'the perceived social pressure to perform or not to perform the behaviour' (Nasco, Toledo and Mykytyn, 2008). Subjective norm is thus a function of beliefs about the expectations of important referent others, and his/her motivation for complying with these referents (Ramayah, Yusoff, Jamaludin and Ibrahim, 2009b: 276).

Thus, the behavioural intention to perform a particular behaviour is determined by a personal factor and a social factor (Ramayah et al., 2009a: 3).

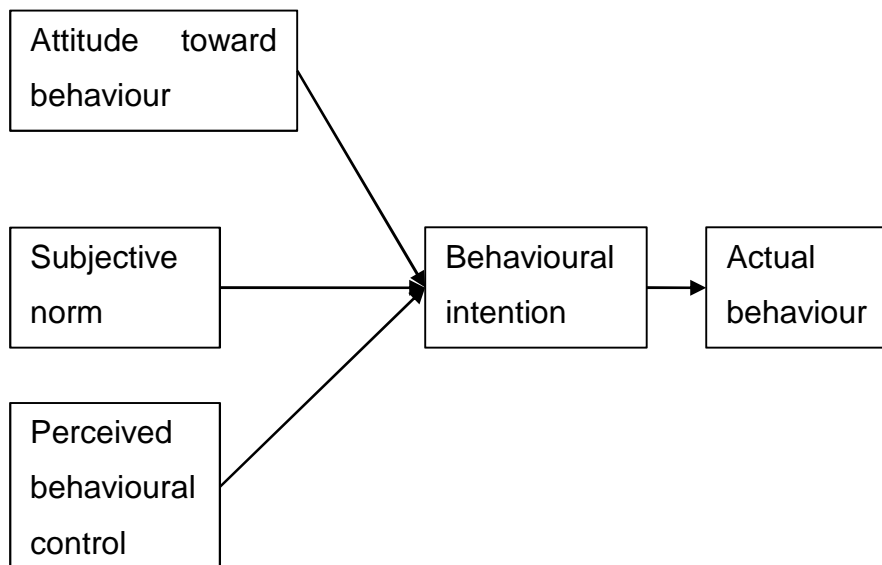
The main limitation of the TRA is that it is concerned with only rational, volitional and systematic behaviour. According to Sheppard, Hartwick and Warshaw (1988: 327), the TRA provides an accurate prediction in situations where the customer has control over all the factors required to successfully use the technology, i.e. situations where in which the ability to achieve one's intentions, given total effort, is absolutely certain. However, when these circumstances do not hold, the TRA cannot explain behaviour accurately.

4.2.3 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is an extension of the TRA (Liao et al., 2007: 2809). The TPB includes the four main constructs in the TRA, but also incorporates perceived behavioural control (see Figure 4.2). Perceived behavioural control refers to “an individual's perception of ease or difficulty in performing the behaviour of interest”. It is associated with the beliefs about the presence of control factors that may facilitate or hinder the performance of the behaviour. Thus, control beliefs about resources and opportunities are associated with an underlying perceived behavioural control element (Liao et al., 2007: 2809). By including perceived behavioural control, the TPB can therefore better predict behavioural intention and actual behaviour in situations of incomplete volitional control than the TRA.

In order to better understand the relationships between the belief structures and the antecedents of behavioural intention, beliefs can be decomposed into multidimensional constructs. This decomposition of the beliefs in the TPB leads to the Decomposed TPB. For example, Taylor and Todd (1995a) claim that the attitude and the perceived behavioural control constructs in the TPB can be decomposed. They argue that the dimensions of the attitude construct are relative advantage, complexity and compatibility, while the dimensions of perceived behavioural control are facilitating conditions and self-efficacy.

FIGURE 4.2
THEORY OF PLANNED BEHAVIOUR



Source: Liao et al. (2007)

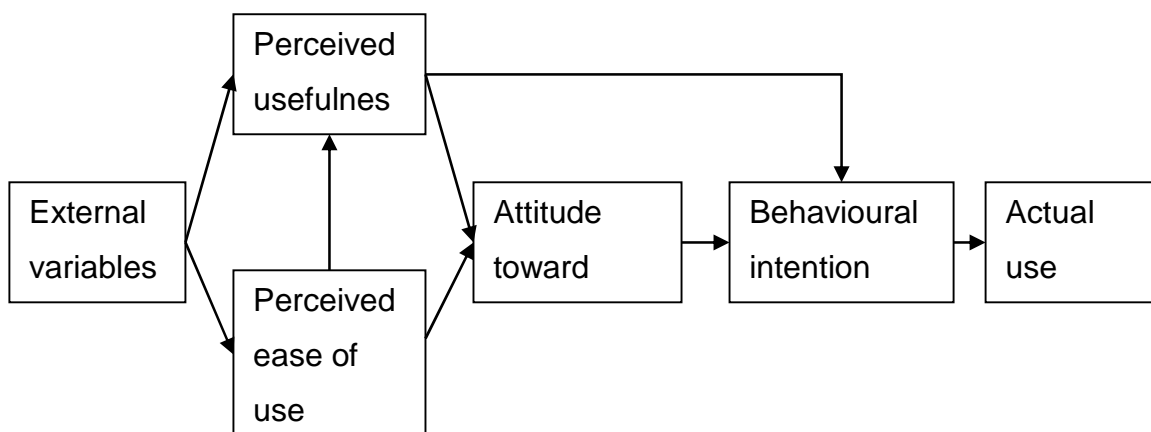
Facilitating conditions are money, time, or technology that is needed to make use of the innovation. An absence of any of these facilitating conditions represents barriers to adoption and may inhibit the formation of intention. Self-efficacy is “the degree of confidence the adopter has in her/his ability to make use of an innovation” With regard to subjective norm Taylor and Todd (1995a: 144) argue that the construct is uni-dimensional; only one dimension exists and that is normative beliefs. Other researchers decomposed main constructs in the TPB differently. For example, Hsu and Chiu (2004) posit that the two dimensions of perceived behavioural control are self-efficacy and controllability. Hsu and Chiu (2004) define controllability as the degree to which the actor has control over the behaviour. According to Hsu and Chiu (2004) the rationale for including controllability as a dimension of perceived behavioural control is that if behaviour is simply not controllable, then there is not much reason to consider performing it. With regard to subjective norm, Hsu and Chiu (2004) and Hung, Ku and Chang (2003) posit that subjective norm does not only consist of interpersonal influence, but also external influence. External influence refers to reports in mass media, expert opinions, and other nonpersonal information sources considered by individuals before and during the performance of a behaviour.

4.2.4 The Technology Acceptance Model

The Technology Acceptance Model (TAM) is the most widely applied model for IS user acceptance and usage (Venkatesh and Morris, 2000; Tseng, Chien-Lung and Yu-Hao, 2012). The first two TAM articles, by Davis (1989) and Davis et al. (1989) had received 424 journal citations in the Social Sciences Citation Index (SSCI) by the beginning of 2000 (Lee, Kozar and Larsen, 2003b). Extending the citation search further, they found 698 journal citations by 2003. During May 2012, Davis (1989) had received 3262 journal citations and Davis et al. (1989) 2182 journal citations according to the Social Science Citation Index (SSCI).

TAM (see Figure 4.3) is also an adaptation of the Theory of Reasoned Action (TRA) from social psychology, which is concerned with the determinants of consciously intended behaviours. The goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis et al., 1989: 985). TAM suggests that two specific beliefs, perceived ease of use and perceived usefulness, determine one's behavioural intention to use a technology (Venkatesh, 2000).

FIGURE 4.3
TECHNOLOGY ACCEPTANCE MODEL



Source: Davis et al. (1989: 985)

Perceived ease of use can be defined as “the extent to which a person believes that using a technology will be free of effort”. It is thus a construct tied to an individual’s assessment of the effort involved in the process of using the system (Venkatesh, 2000). Perceived usefulness is defined as “the degree to which a person believes that using a particular

technology will enhance his [or her] performance” (Sun and Zhang, 2006). Further, TAM posits that perceived usefulness will be influenced by perceived ease of use (Venkatesh, 2000). Similar to TRA, TAM postulates that computer usage is determined by behavioural intention, but differs in that behavioural intention is viewed as being jointly determined by the person’s attitude towards using a system and perceptions of usefulness.

According to Davis (1989), the theoretical importance of an IS’s perceived usefulness and perceived ease of use as determinants of user behaviour is indicated by several diverse lines of research. First, Robey’s (1979) perceived use-performance contingency parallels the definition of perceived usefulness. Second, Bandura’s (1982) research on self-efficacy, defined as “judgments of how well one can execute courses of action required to deal with prospective situations”, confirms the importance of and is similar to perceived ease of use. Research on adoption of innovations suggests a prominent role of perceived ease of use. Complexity, as an innovation characteristic, was found to have a consistent, significant relationship with innovation adoption behaviour (Tornatzky and Klein, 1982). Complexity, defined as “the degree to which an innovation is perceived as relatively difficult to understand and use”, closely parallels perceived ease of use (Davis, 1989: 322). Other lines of research that were also used by Davis (1989) in developing the theoretical justification of perceived ease of use and perceived usefulness include the evaluation of information reports, the channel disposition model and non-MIS studies. The accumulated body of knowledge on the topics discussed above provides theoretical support for perceived usefulness and perceived ease of use as key determinants of user technology adoption behaviour (Davis, 1989: 323).

Over the past few years a number of TAM meta-analysis research articles were published in academic journals that synthesised TAM’s perceived ease of use and perceived usefulness results. These studies were identified through a systematic search of online databases such as Scopus, Scirus, Emerald, EBSCoost and SSCI. Two of the studies, Lee et al. (2003b) and Legris, Ingham and Collette (2003), were published in 2003; and the study of Ma and Liu (2004) in 2004; the more recent studies being those of King and He (2006) and Sun and Zhang (2006).

The review of meta-analysis studies provides a useful basis to identify the consistencies and inconsistencies in past TAM research as it synthesises their findings. Thus, TAM meta-analysis studies confirm the robustness of the technology adoption theory proposed by the TAM. Secondly, meta-analysis results of previous TAM meta-analysis studies

provide greater understanding of the potential relationships among perceived ease of use, perceived usefulness and behavioural intention. Before the results of the five meta-analysis studies can be reviewed, it is appropriate to explain meta-analysis as a research synthesis technique.

4.2.4.1 *Meta-analysis as a research synthesis technique*

Meta-analysis is a rigorous alternative to quantitative and narrative literature reviews (King and He, 2006: 741). In a narrative review, the reviewer takes each study at face value and attempts to find overarching theory that reconciles the findings. Although a narrative review may be acceptable for a small number of studies, the process becomes more complex as the number of studies increases. Hunter, Schmidt and Jackson (1982: 129) believe that, as the information processing task becomes more complex, attempts are made to simplify the integration task by basing conclusions on a small number of studies. Alternatively, the reviewer rejects all but a few of the studies as deficient in design or analysis, and then argues that the one or two acceptable studies are correct. According to Hedges and Olkin (1985: 130) this approach unjustifiably wastes much information and may focus on unrepresentative studies. Thirdly, the reviewer may actually attempt the task of mentally integrating findings across all studies – and then fails to do an adequate job. On the other hand, meta-analysis is a statistical synthesis method that provides the opportunity to view the ‘full picture’ in a research context by combining and analysing the quantitative results of many empirical studies (King and Jun, 2005: 668). A meta-analysis is much less judgmental and subjective than other literature review methods, particularly narrative reviews (Hedges and Olkin, 1985: 670). The major difference between narrative reviews and quantitative meta-analyses may well be that narrative reviews focus primarily on conclusions reached in various studies, whereas meta-analyses focus on data, as reflected by the operationalisation of variables, the magnitude of effect sizes, and the sample sizes.

As can be seen from Table 4.1, the five meta-analysis studies can be grouped in two categories: (1) vote-counting (statistical significance counting) and (2) statistical literature synthesis through combining and analysing quantitative results of past published studies.

TABLE 4.1
TAM META-ANALYSIS RESEARCH STUDIES

| Study | Journal | Number of studies included | Methodology |
|----------------------|--|-----------------------------------|--|
| Lee et al. (2003b) | Communications of the Association of Information Systems | 101 | Vote-counting |
| Legris et al. (2003) | Information and Management | 22 | Vote-counting |
| Ma and Liu (2004) | Journal of Organizational and End User Computing | 26 | Quantitative meta-analysis based on: <ul style="list-style-type: none"> • effect sizes • simple mean • sample size adjusted mean • Fisher r to Z transformation • Fail-safe N |
| King and He (2006) | Information and Management | 88 | Quantitative meta-analysis based on: <ul style="list-style-type: none"> • average rs and βs • homogeneity analysis • power analysis |
| Sun and Zhang (2006) | Human Computer Studies | 55 | Vote-counting |

Vote-counting is a useful method to synthesise research results if insufficient information is available to calculate effect sizes. As quoted in Cooper and Hedges (1994: 194), Light and Smith (1971) were the first to formally describe the ‘taking a vote’ procedure as follows:

“All studies which have data on a dependent variable and a specific independent variable of interest are examined. Three possible outcomes are defined. The relationship between

the independent variable and dependent variable is either statistically significantly positive, significantly negative, or there is no specific relationship in either direction. The number of studies falling into each of the three categories is then simply tallied”.

In other words, the conventional vote-counting review attempts to draw inferences about the existence of treatment effects by sorting the studies into three categories according to the outcome of tests of hypotheses reported in published studies (Hedges and Olkin, 1985: 47). Hedges and Olkin (1985: 48) point out that the use of criteria such as: if more of a third falls into a category that category; the majority; or four-fifths majority, is inferred as the dominant result, could be poor practice. Their explanation appears to be acceptable for this particular inadequacy of vote-counting methodology as it is reviewed in discussions on vote-counting in Hedges and Olkin (1985: 194-195), Hunter et al. (1982: 132) and Glass, McGaw and Smith (1981: 97). Hedges and Olkin (1985) first calculated the probability to fail to detect an effect for various studies and sample sizes for a specific effect size at a cut-off value (C_0) of 1/3. An effect is detected if the proportion of positively significant results exceeds one-third. The complete table containing the probabilities can be viewed in Hedges and Olkin (1985: 50). By developing the probability table (see Table 4.2) Hedges and Olkin (1985: 50) were able to prove that for effect size that is moderate to small ($\delta \leq 0.5$), vote-counting can fail to detect an effect. For example, in Table 4.2 the probabilities that a vote count fails to detect an effect are presented. As the effect size decreases from 0.5 to 0.3 for k 10 and n 40 the probability increases from 0.547 to 0.813 to 0.950. This trend can also be observed for other k studies with sample size n in Table 4.2. The other surprising fact that can be inferred from Table 4.2. is that the probability that vote-counting can fail to detect that an effect increases as k increases. For example: for k 10 with n 30 with and δ of 0.3 the probability is 0.975, while for k 20 with n 30 with and δ of 0.3 the probability is 0.993. This example illustrates that the probability that the vote count makes the correct decision tends to zero as the number k of studies increases.

TABLE 4.2**PROBABILITY THAT A VOTE COUNT WITH $C_0 = 1/3$ FAILS TO DETECT AN EFFECT**

| <i>k</i> | <i>n</i> | Effect size $\delta = (\mu^E - \mu^C)/\sigma$ | | |
|----------|----------|---|-------|-------|
| | | 0.3 | 0.4 | 0.5 |
| 10 | 10 | 0.998 | 0.994 | 0.985 |
| 10 | 20 | 0.990 | 0.966 | 0.906 |
| 10 | 30 | 0.975 | 0.906 | 0.947 |
| 10 | 40 | 0.950 | 0.813 | 0.547 |
| 10 | 50 | 0.914 | 0.694 | 0.358 |
| | | | | |
| 20 | 10 | 1.000 | 0.999 | 0.997 |
| 20 | 20 | 0.998 | 0.988 | 0.941 |
| 20 | 30 | 0.993 | 0.941 | 0.747 |
| 20 | 40 | 0.978 | 0.834 | 0.463 |
| 20 | 50 | 0.948 | 0.672 | 0.222 |

Source: Hedges and Olkin (1985)

Other inadequacies of vote-counting are that it does not take into account sample sizes or the magnitude of the effect. Glass (1977: 358) and Cooper and Hedges (1994: 194), based on the work of Light and Smith (1971), conclude that as sample size increases, the probability of obtaining a statistically significant result also increases. The example used by Light and Smith (1971) to illustrate this postulation was the interpretation of vote-counting using nine small-sample studies that did not yield significant results, and the tenth, a large-sample study, having a significant result. Applying the voting method, the inferred conclusion would likely be in favour of a non-significant result. However, what is not taken into consideration is the effect of sample size on the significance of the correlation. A correlation of .26 can be statistically insignificant, but if sample size is increased the same correlation would be significant (Hunter et al., 1982: 132). Thus, the 'preponderance of data' using counts of statistical significance can be completely false. Lastly, vote-counting does not incorporate combined effect sizes. As already mentioned, it only reports *x* for and *y* against. In quantitative meta-analysis the effect size is calculated using statistical information available such as means, standard deviations, independent *t*-tests, sample sizes, *F*-ratios and correlations.

4.2.4.2 *Meta-analysis results related to perceived ease of use*

The meta-analysis of Lee et al. (2003b) was based on 101 TAM studies and included studies on technology acceptance of communication systems, general purpose systems, office systems and specialised business systems. The meta-analysis pointed out that only 58 studies showed a significant relationship between perceived ease of use and behavioural intention or behaviour (see Table 4.3).

Lee et al. (2003b) concluded that perceived ease of use is thus an unstable measure in predicting behavioural intention or behaviour. According to them, these results concur with findings of similar studies, questioning the role of perceived ease of use in TAM. The non-significance could be explained by, among others, how relatively easy it is to use a system, in which case ease of use is not a predictor of usage (Subramanian, 1994), and the higher priority of usefulness of a computer system in an organisation, rather than the pleasure of using it (Igbaria, Zinatelli, Cragg and Cavaye, 1997). The meta-analysis further confirms perceived ease of use to be a significant antecedent of perceived usefulness and thus also indirectly affects technology acceptance through perceived usefulness.

TABLE 4.3
VOTE-COUNTING META-ANALYSIS RESULTS OF THE ROLE OF PERCEIVED EASE OF USE IN TAM

| Type of relationship | Legris et al. (2003) | | | | Lee et al. (2003b) | |
|------------------------|----------------------|----------|-----------|----------|--------------------|----------------|
| | PEOU – PU | PEOU- AT | PEOU – BI | PEOU – U | PEOU – PU | PEOU – BI or B |
| Positively significant | 21 | 10 | 10 | 4 | 69 | 58 |
| Non-significant | 5 | 3 | 3 | 5 | 13 | 24 |
| Not tested | 2 | 15 | 15 | 19 | 19 | 19 |

PEOU = Perceived ease of use, PU = Perceived usefulness, AT = Attitude towards, BI = Behavioural intention, U = Usefulness, B = Behaviour

Legris et al. (2003) examined the relationships between the variables in the original TAM and posits that 10 relationships could be examined: (1) perceived ease of use – perceived usefulness; (2) perceived usefulness – attitude towards; (3) perceived ease of use – attitude towards; (4) perceived usefulness – behavioural intention; (5) perceived ease of

use – behavioural intention; (6) attitude towards – behavioural intention; (7) attitude towards – usefulness; (8) behavioural intention – usefulness; (9) perceived ease of use – usefulness; and (10) perceived usefulness – usefulness. The meta-analysis consisted of 22 studies; 11 studies categorised as office automation studies, 6 as software development tool studies, and 5 as business application tool studies. The meta-analysis showed results similar to the findings of Lee et al. (2003b), namely that perceived ease of use at times has a non-significant relationship with behavioural intention or usefulness (or behaviour [B]), and that perceived ease of use is a significant antecedent of perceived usefulness (see Table 4.3). The meta-analysis of Sun and Zhang (2006) showed similar results in that the majority of studies confirmed the perceived ease of use – perceived usefulness relationship (43 studies with significant linkages: 7 studies with insignificant linkages) and that perceived ease of use has at times a non-significant relationship with behavioural intention (18 studies with significant linkages: 12 studies with insignificant linkages).

TAM meta-analysis studies estimating the effect size of perceived ease of use and perceived usefulness, using correlation coefficients and/or standardised path coefficients as metrics, were conducted by King and He (2006) and Ma and Liu (2004). Cohen (1988) defines an effect size as ‘the degree to which the phenomenon is present in the population, or the degree to which the null hypothesis is false’ (Cooper and Hedges, 1994:18). Effect size of 0.2 can be interpreted as ‘small’, 0.5 as ‘medium’ and 0.8 as ‘large’ (Stanley, 2001: 136 citing Cohen, 1988). Tables 4.4 and 4.5 also report the Fail-safe N and/or confidence intervals of the estimated effect sizes. The Fail-safe N estimates the number of unpublished studies reporting the null results needed to reduce the accumulated effect across studies to the point of non-significance (Lipsey and Wilson, 2001:166). Confidence intervals indicate the range within which the population mean is likely to be, given the observed data (Lipsey and Wilson, 2001: 114). The direct effect sizes of perceived ease of use on ‘attitude towards’ and perceived usefulness as calculated by Ma and Liu (2004), are presented in Table 4.4.

TABLE 4.4
PERCEIVED EASE OF USE EFFECT SIZE RESULTS OF THE TAM META-ANALYSIS
OF MA AND LIU (2004)

| Link | Z_r | Fail-safe $N_{fs .05}$ | Confidence Interval |
|---------|-------|---------------------------|------------------------|
| PEOU-AT | 0.28 | -0.7 | (21,33) |
| PEOU-PU | 0.54 | 71 | (41,590) |

PEOU = Perceived ease of use, PU = Perceived usefulness, AT = Attitude towards

Perceived ease of use has a medium effect of 0.28 on 'attitude towards', and perceived ease of use also has a medium effect of 0.54 on perceived usefulness (see Table 4.4). The confidence intervals of the effects, which portray the range of effects that might exist in the true population given the presence of errors and variation in the calculation of sample effects, do not include zero. This result suggests that the effect sizes are significantly different from zero. The Fail-safe N for perceived ease of use – attitude towards does not pass the fail-safe test (negative value), while the Fail-safe N for perceived ease of use – perceived usefulness suggests that 71 studies of null effects would have to exist to bring the representative mean estimate down to a level not considered statistically significant.

TABLE 4.5
PERCEIVED EASE OF USE EFFECT SIZE RESULTS OF THE TAM META-ANALYSIS
OF KING AND HE (2006)

| | Link | Sample size | Average (r or (β)) | Z | Confidence intervals | p effect size |
|----------------------|---------|----------------|-------------------------------|--------|-------------------------|------------------|
| Correlations | PEOU-BI | 56 | 0.429 | 13.569 | (0.372, 0.483) | 0.000 |
| | PEOU-U | 77 | 0.491 | 16.482 | (0.440, 0.539) | 0.000 |
| Path coefficients | PEOU-BI | 67 | 0.186 | 8.731 | (0.14.5, 0.226) | 0.000 |
| | PEOU-U | 65 | 0.479 | 12.821 | (0.451, 0.538) | 0.000 |

PEOU = Perceived ease of use, BI = Behavioural intention, U = Usefulness

The meta-analysis results of King and He (2006) are consistent with the results of the meta-analysis studies of Ma and Liu (2004). Perceived ease of use has a medium effect size on behavioural intention and perceived usefulness and the effect on behavioural intention is less than on perceived usefulness (see Table 4.5). Furthermore, the analysis

indicates that the synthesis of TAM results indicates that perceived ease of use has a significant relationship with perceived usefulness and behavioural intention.

4.2.4.3 *Meta-analysis results related to perceived usefulness*

Lee et al.'s (2003) meta-analysis, based on vote-counting, indicates that of the eighty four (74 + 10) times the relationship between perceived usefulness and behavioural intention or behaviour were examined and reported in the literature, it was found to be significant 88% of the times (i.e., significant in 74 of the 84 studies). The vote-counting results of Legris et al.'s (2003) meta-analysis indicated that perceived usefulness more often than not, has a positive and significant influence on attitude towards or behavioural intention, than on usefulness. These results were also similar to the results of Sun and Zhang (2006). They counted 38 studies supporting the perceived usefulness – behavioural intention relationship and only 7 studies not supporting it (see Table 4.6).

TABLE 4.6
VOTE-COUNTING META-ANALYSIS RESULTS OF THE ROLE OF PERCEIVED USEFULNESS IN TAM

| | Legris et al. (2003) | | | Lee et al. (2003b) |
|------------------------------|----------------------|---------|--------|--------------------|
| | PU – AT | PU – BI | PU – U | PU – BI or B |
| Significant relationships | 12 | 16 | 8 | 74 |
| Non-significant relationship | 1 | 3 | 5 | 10 |
| Not tested | 14 | 9 | 15 | 17 |

PU = Perceived usefulness, AT = Attitude towards, BI = Behavioural intention, U = Usefulness, B = Behaviour

TABLE 4.7
PERCEIVED USEFULNESS EFFECT SIZE RESULTS IN KING AND HE (2006)

| | Link | Sample size | Average (r) or (β) | Confidence intervals | p effect size |
|-------------------|-------|-------------|----------------------------|----------------------|---------------|
| Correlations | PU-BI | 59 | 0.589 | (0.546, 0.628) | 0.000 |
| Path coefficients | PU-BI | 67 | 0.505 | (0.458, 0.549) | 0.000 |

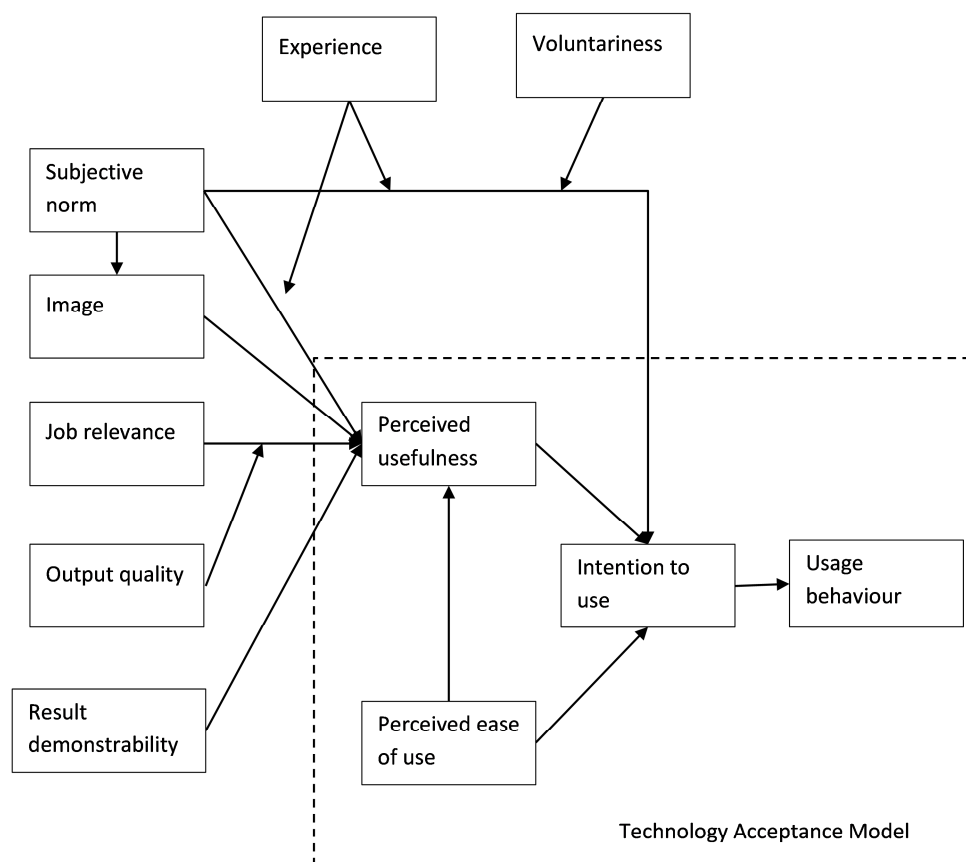
PU = Perceived usefulness, BI = Behavioural intention

The perceived usefulness – behavioural intention relationship is further explained by King and He's (2006) results tabulated in Table 4.7. The effect size estimated using Z to r transformations is 0.589 and the estimation using path coefficients is 0.505 and is significant (King and He, 2006).

4.2.5 TAM2

TAM 2 is an extension of the original TAM which incorporates social influence processes and cognitive instrumental processes (see Figure 4.4).

FIGURE 4.4
TAM2



Source: Venkatesh and Davis (2000)

The social influence processes in TAM2 are voluntariness, subjective norm and image. The cognitive instrumental processes in TAM2 are job relevance, output quality, result demonstrability and experience. According to TAM2 the determinants of perceived usefulness are subjective norm, image, job relevance, output quality and result demonstrability. TAM 2 also posits that subjective norm has a positive influence on

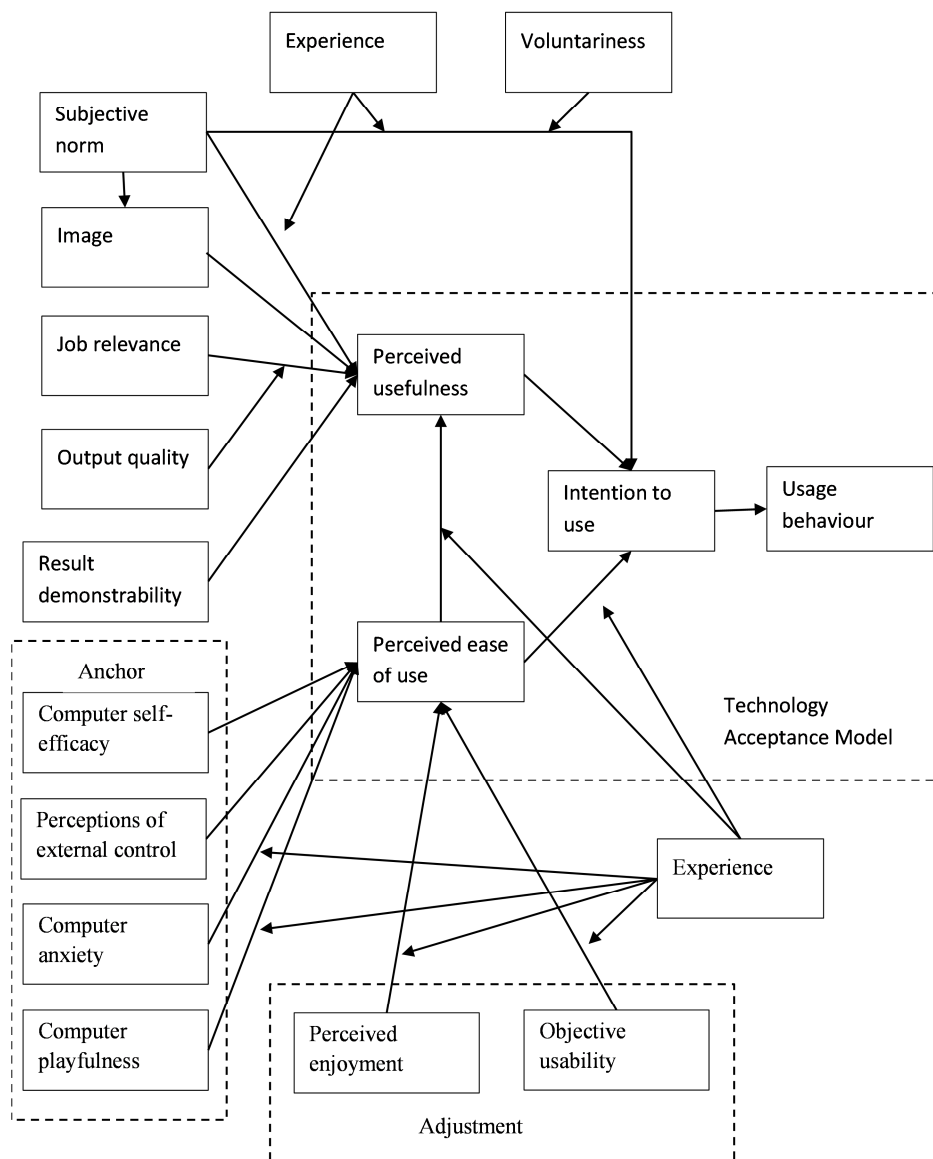
intention to use (Venkatesh and Davis, 2000). In addition to these determinants, TAM2 also posits that experience moderates the relationships between subjective norm and perceived usefulness and intention to use, and that voluntariness moderates the relationship between subjective norm and intention to use.

4.2.6 TAM3

TAM3 (see Figure 4.5) combines TAM2 (Venkatesh and Davis, 2000) and the determinants of perceived ease of use in Venkatesh (2000).

FIGURE 4.5

TAM3



Source: Venkatesh and Bala (2008)

TAM3 incorporates the following new relationships that were not initially tested in Venkatesh (2000) and Venkatesh and Davis (2000).

- Experience moderates the relationship between perceived ease of use and perceived usefulness.
- The relationship between computer anxiety and perceived ease of use is moderated by experience.
- The relationship between perceived ease of use and behavioural intention is moderated by experience.

4.2.7 Reviewing the relevance of adoption theories in electronic marketing channels

The IDT, TRA, (Decomposed) TPB and TAM have been used over the years by various researchers to explain the adoption and the continuance of use of electronic channels. In this section a selection of studies will be briefly discussed to demonstrate how these theories were used to explain the adoption and the continuance use of electronic channels. It is important to point out that in many of the selected studies theories such as the IDT, TRA, (Decomposed) TPB and the TAM were integrated to explain adoption or the continuance of use. The premise for the integration of theories is that a combined theory can explain more of the target variable (adoption or continuance of use) since it addresses the limitations of the individual theories. For example, Chen, Fan and Farn (2007) and Wu and Chen (2005) argue that human and social factors could play a role in the adoption of technology. Therefore, the TAM can be extended with constructs from the TPB to incorporate the social factors that could explain technology adoption.

To date, many studies have used the IDT to gain an understanding of the adoption and the continued use of electronic channels. For example, in the study of Wang, Wu, Lin, Wang and He (2011) on the adoption of Web automatic teller machines (ATM) by Taiwanese bank customers, perceived relative advantage, perceived complexity and perceived compatibility were included as three of the six determinants of web ATM adoption. The results of the study indicated that perceived relative advantage and perceived compatibility had a positive influence on web ATM adoption as hypothesised, whilst perceived complexity had a significant negative influence. Lu, Yang, Chau and Cao (2011) include three innovation diffusion factors, namely relative advantage, compatibility and image in

their research model to study intention to use mobile payment services. The results of the study showed that relative advantage, compatibility and image had a significant positive influence on intention to use mobile payment services.

Hsu, Yen, Chiu and Chang (2006) applied the Decomposed TPB, which is an extension of the TRA, in a longitudinal study of the continuance intention of online shopping. In the research model the TRA components were the two types of subjective norm, interpersonal influence and external influence, and attitude. Hsu et al. (2006) included perceived behavioural control from the TPB as a predictor of continuance intention of online shopping. Given that the study was a longitudinal study, interpersonal influence, external influence, perceived behavioural control and attitude were measured during the pre-usage stage and the usage stage. The results of the study showed that interpersonal influence (usage), perceived behavioural control (usage) and attitude (usage) had a positive influence on continuance of use – intention of online shopping.

Giovanis, Binioris, Tsiridani and Novas (2009) extended the TAM with a construct from the IDT. In their research model it was hypothesised that perceived usefulness and perceived ease of use have a positive, significant influence on continued use of internet banking, while perceived compatibility has a significant positive influence on perceived usefulness, perceived ease of use and intention to continue the use of internet banking.

The studies discussed up to this point have shown that the IDT, TRA and the Decomposed TPD, and TAM can be used to explain adoption and the continued use of electronic marketing channels in general. To demonstrate the applicability of these theories to understand user adoption and the continuance of use of internet and cellphone banking, the following studies are reviewed briefly.

Tan and Teo (2000) integrated the IDT with the Decomposed TPB to study factors influencing the adoption of internet banking. The findings of their study indicated that the relative advantage, compatibility with values (decomposed into internet experience and banking needs), trialability, and perceived behavioural control (decomposed to self-efficacy and government support) have a significant influence on intention to adopt internet banking.

Brown, Cajee, Davies and Stroebel (2003) studied the adoption of cellphone banking adoption by integrating IDT and the Decomposed TPB. The findings of their study indicated that relative advantage and trialability have a significant influence on intention to

adopt cellphone banking. Brown et al. (2003) also included the two dimensions of perceived behavioural control; facilitating conditions and self-efficacy, as antecedents of likelihood to adopt cellphone banking by South African bank clients. The results of the study did not support the hypotheses related to facilitating conditions and self-efficacy. According to Brown et al. (2003) this may be due to the fact that very few respondents have actually used cellphone banking and thus may not be able to unambiguously develop perceptions of whether this technology would be compatible with their lifestyle, whether facilitated support for its use would be necessary, whether they would have the confidence to use it, and whether it would be difficult to use.

Suoranta (2003) investigated the influence of the five innovation diffusion characteristics on the adoption of cellphone banking by bank clients in Finland. Her study indicated that relative advantage, compatibility, trialability and observability have a significant influence on the adoption of cellphone banking and that compatibility, defined in the study as “the degree to which an innovative channel such as a mobile device is compatible with the individual’s past experiences and value”, exerted the strongest influence on the likelihood to adopt cellphone banking.

The TPB, as well as the Decomposed TPB, have been applied to study the adoption of internet and cellphone banking. Shih and Fang (2004) studied the adoption of internet banking by means of the TPB and the Decomposed TPB as proposed by Taylor and Todd (1995a). The findings of their study firstly indicated that the Decomposed TPB explains attitude, subjective norm and behavioural intention better than the TPB. The TPB explained 54% of the variance in behavioural intention and the Decomposed TPB 66%. Secondly, in both the TPB and the Decomposed TPB models subjective norm did not have a significant influence on behavioural intention. Shih and Fang (2004) argue that this finding is in line with the findings of Venkatesh and Davis (2000) that subjective norm is likely to have a significant influence on behavioural intention in a mandatory usage context, whilst the effect can be insignificant in a voluntary context.

On the other hand, Gu, Lee and Suh (2009) extended the TAM by including facilitating conditions and self-efficacy (two dimensions of perceived behavioural control) as determinants of ease of use in their study of mobile banking adoption. The results of the study indicated that facilitating conditions and self-efficacy are indeed determinants of the perceived ease of use of cellphone banking.

Lai and Li (2005) used the TAM to investigate whether gender, age and IT competence moderate the formation of intention to adopt internet banking. The results of their study indicated that gender moderates the relationship between perceived usefulness and attitude, and perceived ease of use and attitude. Furthermore, age emerged as a moderator for the influence of perceived usefulness on intention to use, as well as the influence of attitude on intention to use. The results of the study of Lai and Li (2005) also showed that IT competence does not moderate the formation of intention at all.

In the cellphone banking context Luarn and Lin (2005) extended the TAM by adding perceived self-efficacy from the Decomposed TPB. The study of Luarn and Lin (2005) found that perceived usefulness, perceived ease of use and perceived self-efficacy influence behavioural intention.

The research model of Hernandez and Mazzon (2007) included constructs from the IDT, the TAM and the Decomposed TPB. The results of the Hernandez and Mazzon (2007) study indicated that relative advantage of security and privacy, relative advantage of control, result demonstrability, compatibility with lifestyle, trialability, image, subjective norm and self-efficacy influence intention to use or continued use intention of internet banking.

Nor, Shanab and Pearson (2008) investigated the intention to adopt internet banking in Malaysia by using the TRA. The results of their study showed that attitude towards internet banking and subjective norm influence behavioural intention. Moreover, the influence of attitude on behavioural intention was stronger than the influence of subjective norm behavioural intention. In the study, attitude and subjective norm explained 45% of the variance in behavioural intention.

Crabbe, Standing, Standing and Karjaluoto (2009) extended the TAM with Facilitating conditions (a construct in the Decomposed TPB) in their study of cellphone banking adoption in Ghana. In their study they found that usefulness and facilitating conditions have the expected positive influence on intention to adopt cellphone banking. The study of Crabbe et al. (2009) further confirmed that both facilitating conditions and usefulness have a positive influence on usage and sustained usage.

In the study of Lee (2009) the TAM and the TPB were integrated to explain the adoption of internet banking. Lee (2009: 132) argued that previous research showed that the integrated model had better explanatory power than the separate use of TAM and TPB.

The results of the study indicated that perceived usefulness and perceived ease of use have a positive influence on attitude, perceived ease of use a positive influence on perceived usefulness and perceived usefulness a positive influence on intention. Furthermore, in the study of Lee (2009) subjective norm and perceived behavioural control also have a positive influence on intention.

4.2.8 Technology Cluster Theory

In section 4.2.1, the IDT was indicated as a key theory to explain the adoption and continued use of electronic channels. The general understanding of the diffusion of innovations is that the factors listed in section 4.2.1 are the major innovation characteristics playing a role in the diffusion of an innovation. However, the factors listed in section 4.2.1 do not explicate the pattern of adopting one innovation on the basis of adopting another innovation. In the context of the diffusion of innovations, this pattern is referred to as the technology cluster effect.

Rogers (2003), cited in Vishwanath and Chen (2006), conceptualises technology clusters as one or more distinguishable elements of technology that are perceived as being interrelated. Technologies (products) that form a cluster presumably satisfy the same underlying need, because they are compatible with each other and possess similar attributes. Eastin (2002) corroborates this view of Rogers (and extend it to the IS domain) by stating that people are more likely to adopt information technologies 'functionally compatible' to those previously adopted. The phenomenon of 'related adoption' suggests that potential adopters view technologies as interrelated wholes rather than disparate technological entities (products). Therefore, the adoption of one technology from a cluster can lead to the adoption of another technology from that same cluster (Vishwanath and Chen, 2006). There is thus an associational process where individuals consciously or unconsciously relate technologies to each other.

The technology cluster effect is strongly linked to the compatibility factor listed in section 4.2.1. Karahanna, Agarwal and Angst (2006) define compatibility as a perceived cognitive distance between an innovation and precursor methods for accomplishing tasks. Furthermore, Karahanna et al. (2006: 787) contend that compatibility consists of four dimensions: (1) compatibility with existing work practices; (2) compatibility with preferred work style; (3) compatibility with prior experience; and (4) compatibility with values. The empirical results of the study of Karahanna et al. (2006) provide evidence that three of the dimensions of compatibility can influence perceived ease of use and perceived usefulness

of an information system. Firstly, compatibility with existing work practices positively influences perceived ease of use and perceived usefulness. Secondly, compatibility with prior experience negatively influences perceived ease of use and perceived usefulness. This finding is in the opposite direction as hypothesised. Karahanna et al. (2006) comment as follows on this finding,

“We had hypothesized that the more compatible a system was with one’s prior experiences the more useful it was likely to be perceived. Our results show that the less compatible the system experiences (e.g., using the system is not similar to anything that I have done before) the more useful it was perceived. Thus, it may be that individuals who have used similar systems before or who have used systems that embodied similar types of functionality is not as impressed as individuals who encounter such a system for the first time.”

Lastly, compatibility with values positively influences only perceived ease of use.

The compatibility proposition has been examined in a number of internet banking and cellphone banking studies.

In the internet banking context, task familiarity was identified by Chau and Lai (2003) as a significant predictor of perceived usefulness. Task familiarity represents “the degree of nonvariability and certainty of activities that a user need to resolve when using the technology” (Chau and Lai, 2003: 128). Chau and Lai (2003) argue that internet banking is a delivery channel that is compatible with conventional banking systems, whereby users perform common banking transactions in a manner compatible with brick-and-mortar practices. Therefore, users will spend less time translating task activities between the two systems, thereby enhancing the perceived usefulness of internet banking.

The study of Brown et al. (2003) aimed to identify predictors of cellphone banking adoption in South Africa. In their study they found that compatibility did not significantly influence the likelihood to adopt cellphone banking. According to Brown et al. (2003) a possible reason for the non-significant influence of compatibility is that very few of the respondents have actually used the service. Therefore, the respondents might not have been able to unambiguously develop perceptions of whether cellphone banking is compatible with their lifestyle.

The investigation by Kolodinsky, Hogarth and Hilgert (2004) showed that compatibility (referring to how compatible e-banking is with the way consumers manage their finances)

is a significant predictor of computer banking adoption by consumers who never intend to use computer banking, as well as consumers unlikely to use it, likely to use it and current users.

The technology cluster concept has also been examined in a number of electronic marketing channels studies.

The study of Binge, Ruiz and Sanz (2005) investigated the impact of internet shopping patterns and demographics on consumer mobile buying behaviour. As part of the study the technology cluster concept was measured by experience as online shopper and internet exposure. The results of the study indicated that experience as online shopper significantly predicts m-commerce adoption.

In the study of Yang (2005) it was argued that, because m-commerce is a technology developed from computer and communication technologies, consumers who adopt cellphones, PDAs, notebook computers, and GRPS mobile phones should be more likely to adopt m-commerce. Furthermore, Yang (2005: 264) also argued that given the similarities between e-commerce and m-commerce it can be expected that prior adoption behaviour about innovations, taking into account the technology cluster product, influence perceived usefulness and perceived ease of use of m-commerce. The results of the study of Yang (2005) showed that past adoption behaviour and ownership of related products (the technology cluster concept) can influence the perceived usefulness and perceived ease of use of a related technology.

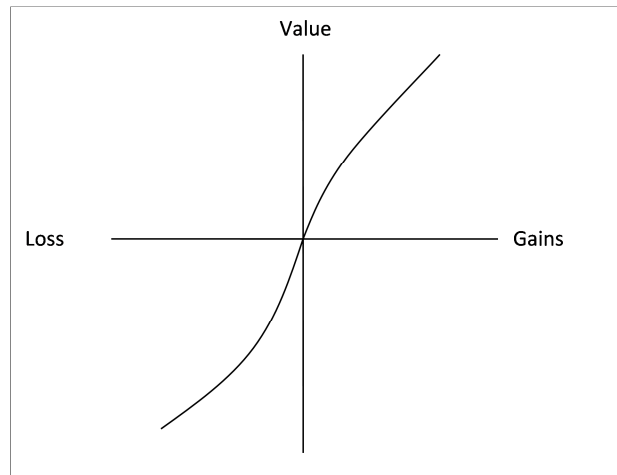
The discussion in this section provides some insight into the role of Technology Cluster Theory in the adoption of electronic marketing channels. A more in-depth understanding of the role of technology cluster phenomena in consumers' adoption of new technologies can be developed by considering internal reference points in consumer decision making (Prospect Theory) and mental accounting.

4.2.9 The role of reference points in consumer decision making

The role of reference points in customer decision making was initially captured in Prospect Theory proposed by Kahneman and Tversky (1979). Prospect Theory accounts for individual decision making under circumstances of risk and proposes two stages in the choice process: an early phase of editing and a subsequent phase of evaluation. The editing phase entails a preliminary process of analysis of the offered prospects. A prospect is a contract that yields a specific outcome with a specific probability (Kahneman and

Tversky, 1979: 263). In the second stage of Prospect Theory the edited prospects are evaluated and the prospect with the highest value is chosen. In the evaluation of outcomes, the reference point serves as a boundary that distinguishes gains from losses (Tversky and Kahneman, 1992). The value function is concave after the reference point and convex before the reference point (see Figure 4.6).

FIGURE 4.6
A HYPOTHESED VALUE FUNCTION



Source: Tversky and Kahneman (1992: 279)

According to a reference-dependent model (Tversky and Kahneman, 1991), a product is evaluated relative to its reference points. The product can then be perceived either positively or negatively, relative to these reference points (Kwon and Lee, 2009: 719). Studies illustrating the application of Prospect Theory in a marketing context are the following:

According to Russell, Ratneshwar, Shocker, Bell, Bodapati, Degeratu, Hildebrandt, Kim, Ramaswami and Shankar (1999) multiple-category decision-making implies cross-category choice dependence. Such dependence can occur under three conditions of which one is where behavioural variables such as brand recall, attribute learning or attribute preference in one product category can influence the choice in a different category. Under this condition the choice of an item in one category is impacted by a consumer's experience with another category. This decision schema is also referred to as cross-category learning where choice dependence can be induced by learning from earlier choices (Russell et al., 1999: 324; Shocker, Barry and Kim, 2004: 31). Cross-category learning can be explained at the hand of a number of explanations such as knowledge

transfer on key attributes, affect transfer due to cross-category branding and cross-category use complementarity (Russell et al., 1999: 328-329).

In the study of Kwon and Lee (2009) the influence of reference points, knowledge and risk propensity on the evaluation of financial products were investigated. The study of Kwon and Lee (2009) found evidence that safer reference points can increase the attractiveness of financial products, whilst a riskier reference point can have an opposite influence on the attractiveness of financial products. Furthermore, the study of Kwon and Lee (2009) also found support for the view that providing a reference point can positively affect the evaluation of the focal product and that knowledge moderates that influence of the reference point on the focal object.

In the study of Compeau, Meister and Higgins (2007) empirical support was found for the contention that prior experiences influence the perceptions of the ease of use of an innovation. Compatibility with prior experiences reflects the degree to which an individual sees an innovation to be consistent with his or her past experiences. Prior experience was measured with items such as "Using the innovation is different from everything I've done before". Based on the results of the study it can be concluded that prior experiences form consumers' mental models of an innovation and can therefore influence perceived ease of use on the innovation.

By integrating Prospect Theory into Technology Cluster Theory, it can be contended that attributes of one technology act as reference points for decision-making regarding another technology. Thus, users of the 'other technology' will use objective and subjective evaluations of attributes related to that technology to evaluate the utility of another technology. Non-users of the 'other technology' can only use subjective evaluations of the attributes of the 'other technology' to evaluate the perceived utility of another technology.

4.2.10 Mental Accounting Theory, reference points and Technology Cluster Theory

Mental Accounting Theory is based on Prospect Theory (Gupta and Kim, 2010: 17). Mental Accounting Theory holds that customers analyse transactions in two stages. The first stage is a judgment stage, whilst the second stage is a decision-making stage (Thaler, 2008). In the evaluation stage two types of utility are present, acquisition utility and transaction utility. Thaler (2008) operationalises acquisition utility as the value of the goods (equivalent value) compared to the outlay (payment) and transaction utility as the

perceived merits of the deal. Equivalent value is the amount of money that would leave the individual indifferent between receiving the cash or the product as a gift (Gupta and Hee-Woong, 2007). Objective price is the total amount a customer has to pay to obtain or use the product. The merits of the transaction is the difference between the reference price of the product and the objective price of the product (Gupta and Hee-Woong, 2007). Total utility from a purchase is the sum of acquisition and transaction utility (Thaler, 2008: 19). In making purchase decisions, customers maximize their total utility with reference to the mental account corresponding to the product being purchased (Gupta and Hee-Woong, 2007). The specific mental account is restricted by the budget allocated to that mental account (Gupta and Kim, 2010).

Thaler (2008), as part of Mental Accounting Theory, also proposed that outcomes can be valued jointly as losses and gains or separately as losses and gains. In a situation where multiple gains are expected, outcomes will be valued separately. In the case of multiple losses the outcomes will be integrated. If the outcomes are valued as larger gains and smaller losses, the outcomes will be integrated. The integration amounts to the 'cancellation' of the losses. And when the outcomes are valued as smaller gains and larger losses, the outcomes will be segregated to emphasise the 'silver lining' outcome. Segregated gains and losses will directly influence the consumer's choice, whilst integrated gains and losses can influence the choice through perceived value (Gupta and Kim, 2010: 20).

Mental Accounting Theory, combined with the role of reference points in consumer decision-making, provide a deeper understanding of Technology Cluster Theory. Firstly, the perceived value of the technology (in this case an electronic marketing channel) to be adopted will be estimated using the reference points of the 'other technology' (in this case the other/another electronic marketing channel) as the likely utility of the technology to be adopted. The reference points pertaining to the 'other technology' are coded as potential gains or losses pertaining to the technology considered for adoption. In line with Mental Accounting Theory, if the reference points are coded as multiple gains, the reference points will be considered separately in making the adoption choice. It is expected in such a situation that the segregated reference points will enhance the overall attractiveness of the technology. If the reference points are coded as multiple losses the attractiveness of the technology evaluated for adoption is lowered. When the gains are more than the losses, the gains will be integrated and so influence adoption of the technology. Lastly, in a situation where the reference points are coded as smaller gains and larger losses, the

consumer will focus on the reference points that are 'silver linings' to making the adoption choice.

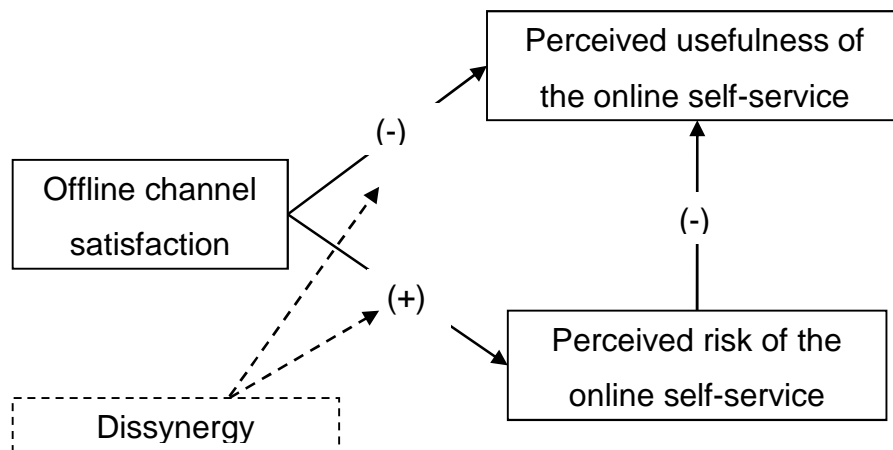
4.3 CONSUMER BEHAVIOUR THEORIES UNDERPINNING MULTI-CHANNEL MARKETING

In line with the multichannel marketing concept, the ideal situation would be for customers to use more than one channel to interact with a business organisation. The decision by the customer to make use of a specific channel at a specific stage of the customer decision making process is of course influenced by a number of factors. According to Neslin et al. (2006) channel selection can be influenced by factors such as marketing efforts, channel attributes, channel integration, social influence, situational factors and individual differences. In a relational context, Montoya-Weiss et al. (2003) point out that channel choice is based on the relative assessment of a service provider's alternative channel formats. Previous research has shown that these assessments can lead to cross-channel evaluative synergies and dissynergies.

Falk et al. (2007) define evaluative dissynergies as the cognitive process underlying multichannel conflicts. In other words, cross-channel evaluative dissynergy implies that a positive evaluation of one channel can lead to negative evaluation of an alternative channel (see Figure 4.7). On the other hand, cross-channel evaluative synergy implies that a positive evaluation of one channel leads to the positive evaluation of an alternative channel.

To explain the formation of cross-channel evaluative synergies and dissynergies, it is argued in this study that Expectation-transfer Theory presents the framework for evaluative synergies and dissynergies, whilst Status quo bias Theory presents the framework for evaluating dissynergies. In sections 4.3.1 and 4.3.2 each of these theories will be discussed in more detail.

FIGURE 4.7
AN ILLUSTRATION OF CROSS-CHANNEL DISSYNERGY



Source: Adapted from Falk et al. (2007)

4.3.1 Expectation-transfer theory

Expectation-transfer Theory of Bhatnagar, Lurie and Zeithaml (2003) is one of the established theories that explains multi-channel behaviour of consumers. In the study of Bhatnagar et al. (2003) empirical evidence was found that offline experiences play a major role in the formation of online expectations. According to Bhatnagar et al. (2003), Expectation-transfer Theory is based on three theories, namely theories of classification and categorisation (Murphy and Medin, 1985), similarity (Tversky, 1977) and prototypicality (Rosch, Mervis, Gray, Johnson and Boyes-Bream, 1976).

According to Murphy and Medin (1985), the most powerful explanation of conceptual coherence is that objects, events and entities form a concept, because they are similar to one another. Thus, similarity is the most fundamental characteristic of objects, events and entities that fall within the same category. Coherent or useful categories based on similarities across the categories enable individuals to make inferences – “after all, one purpose of categories is to enable inferences that may not be apparent from individual exemplars”. Objects, events and entities can be classified according to a number of theories as being coherent, i.e. belong to a specific category. These theories include correlated attributes, categorisation theories and attribute matching.

Similarity plays a fundamental role in theories of knowledge and behaviour. The notion of similarity in objects is very important as it serves as an organising principle by which individuals make generalisations (Tversky, 1977: 327). More importantly, similarity

depends on the context and the frame of reference (Tversky, 1977: 340). Similarity judgements can be regarded as extensions of similarity statements, that is, statements of the form “a is like b”. Such a statement of similarity has four important elements; it is directional, it has a subject, a, and a referent, b, and is not equivalent in general to the converse similarity statement “b is like a”. The asymmetry in the choice of similarity statements is associated with the asymmetry in judgements of similarity. According to Tversky (1977) similarity increases when the set of features from two objects match each other.

According to Rosch et al. (1976), “By category we mean a number of objects which are considered equivalent.” Categories are developed by categorising stimuli. To categorise a stimulus means to consider the stimulus, for the purpose of that categorisation, not only equivalent to other stimuli in the same category, but also different from stimuli not in that category. Basic level categories maximise cue validity. Cue validity is when the validity of a given cue x as a predictor of a given category y increases as the frequency with which cue x is associated with category y increases (Rosch et al., 1976: 384). A coherent category should have many such cues, whilst a poor category has only inconsistent cues or very few good cues (Murphy and Medin, 1985).

To summarise, the studies of Murphy and Medin (1985), Tversky (1977) and Rosch et al. (1976) propose that objects, events and entities in a category share similarities that present high cue validity within the category, but not across categories. More importantly, the higher the cue validity, the stronger the generalisations are that can be made across the objects, events and entities in a category.

Based on these three theories, Bhatnagar et al. (2003) argue that the tendency to place domains in common mental categories is expected to be higher when the domains are expected to be highly similar to each other. Moreover, strong generalisations across domains that are members of common categories might therefore be expected, such that experiences within one domain are treated as surrogates for experiences in the other domain. With the generalisation of experiences it is expected that the generalisation of the highly prominent experiences will be greater than the generalisation of the less prominent experiences.

In the context of products, similarity is typically defined in terms of the consumer’s judged distance or proximity between products. Hence products judged to be close to each other are assumed to be not only similar, but also similarly preferred (Lefkoff-Hagius and Mason,

1993). Given that marketing channels serve a single primary function – that of getting goods from the producer to the consumer – some similarity amongst them is expected. Channels, like products, are bundles of attributes and may be more similar on some attributes than others. If product attributes lead to perceived similarities and differences in products, it stands to reason that channel attributes lead to perceived similarities and differences in channels (Michaelidou, Arnott and Dibb, 2005).

Internet banking and cellphone banking are both subsets of electronic banking (Lassar et al., 2005; Wang et al., 2003). Internet banking and cellphone are also very similar in terms of features. Firstly, internet banking and cellphone banking offer ubiquitous banking. Secondly, internet banking and cellphone banking deliver similar benefits to the consumer (see Tables 3.1 and 3.3 for summary of advantages as advertised on the Big Four's website). Both electronic banking services offer convenience, cost-effectiveness and time saving, which makes cellphone banking compatible with internet banking from the perspective that it complements the preferred banking mode and existing banking routines made possible by internet banking. Thirdly, with both electronic banking services, transaction information are sent over computer networks that may pose a security or privacy risk for the users. Fourthly, the interface of internet banking and cellphone banking is similar and this allows the user to apply their 'how to' knowledge of internet banking to cellphone banking.

Considering the discussion in this section, it is reasonable to assert that both synergistic and dissynergistic cross-channel cognitive evaluations between internet and cellphone banking can be formed because (a) internet and cellphone banking are similar and (b) both internet and cellphone banking falls within the category 'electronic banking'. Thus, expectation-transfer from internet banking (the more prominent channel) to cellphone banking will take place in customer cross-channel cognitive evaluations.

4.3.2 Status quo bias

According to Falk et al. (2007) a plausible explanation for evaluative dissynergies may be the phenomenon of status quo bias. The theory of rational decision-making under uncertainty posits that individuals assign probabilities to the possible outcomes, calibrates the value of the outcomes and then selects the alternative that offers the highest utility (Samuelson and Zeckhauser, 1988). According to Samuelson and Zeckhauser (1988) the

final decision made under the theory of rational decision making under certainty or uncertainty should be based only on the preference-relevant features of the alternatives. Hence, neither the order of the alternatives, nor the labels that alternatives carry should play a role. However, Samuelson and Zeckhauser (1988) further argue that in real-world decision problems the alternative choices are often associated with influential labels and one such label is status quo – “that is, doing nothing or maintaining one’s current or previous decision”. Therefore, status quo bias can be defined as a preference for the current state of affairs regardless whether the alternative has a higher utility (Falk et al., 2007). Thus, the decision anomaly of status quo bias contradicts the theory of rational choice under certainty and uncertainty, which states that individuals always optimise the expected utility of options when making decisions (Hewig, Kretschmer, Trippe, Hecht, Coles, Holroyd and Miltner, 2011).

According to Kahneman, Knetsch and Thaler (1991) and Tversky and Kahneman (1991) status quo bias can be explained by Loss Aversion Theory. Loss aversion behaviour by individuals can be understood by considering Prospect Theory, (Hardie, Johnson and Fader, 1993), because gains and losses must be estimated. To recap from the discussion in section 4.2.9, prospect theory posits that gains and losses are evaluated against a reference attribute (Tversky and Kahneman, 1992). Prospect theory accounts for individual decision-making under risk and proposes that the choice process consists out of two stages. The first stage is the editing phase that entails a preliminary process of analysis of the offered prospects. In the second stage, according to Prospect Theory, the edited prospects are evaluated and the prospect with the highest value is chosen. In the evaluation of possible outcomes, the reference point serves as a boundary that distinguishes gains from losses (Tversky and Kahneman, 1992). An attribute better than the reference attribute is identified as a gain, whilst an attribute worse than the reference attribute is identified as a loss

Loss aversion is the tendency of individuals to put more weight on potential losses than potential gains of the same amount – “changes for the worse (losses) loom larger than equivalent changes for the better” (Kahneman et al., 1991). In the context of status quo bias, Loss Aversion Theory implies that individuals place more emphasis on the losses associated with giving up the current option, than on the potential benefits of acquiring or making use of the alternative option. In other words, they maintain the status quo.

4.4 SUMMARY

The aim of this chapter was to provide an overview of the consumer behaviour theories that provide insights into the adoption and the continued use of concurrent electronic channels. The review of the different technology adoption theories demonstrated that various factors could play a role in the adoption of electronic channels. For example, the IDT incorporates factors such as relative advantage of the technology, compatibility, complexity, and so on that can influence the adoption of new technology. On the other hand, the TPB incorporates factors related to how an individual assess the ease or difficulty in using a specific technology (self-efficacy and facilitating conditions). And lastly, the TAM, TAM2 and TAM 3 were explained to illustrate how perceived usefulness and ease of use perceptions influence adoption behaviour. In addition to explicating theories underpinning technology adoption behaviour, theories underpinning the formation of cross-channel cognitive evaluations were also discussed. In the chapter Expectation-transfer Theory and that Status quo bias Theory were identified as the salient theories guiding cross-channel evaluative synergies and dissynergies.

The aim of the next chapter is to develop a conceptual model of the formation of intention to use and continued use of cellphone banking in an internet banking context. The technology adoption theories discussed in this chapter will be used as a framework to identify internet banking beliefs that influence the formation of intention to use and the continuance of use intention of cellphone banking. Expectation-transfer Theory and Status quo bias Theory, also discussed in this chapter, will be used to hypothesise the direction of the relationships between internet banking beliefs and the perceived usefulness and perceived ease of use of cellphone banking. Thus, this chapter provided theoretical foundations that will play an important role in the next chapter (Chapter 5) to develop a conceptual model of bank clients' internet banking – cellphone banking cross-channel cognitive evaluations to realise the primary objective of the study.

CHAPTER 5

CONCEPTUAL MODEL DEVELOPMENT

5.1 INTRODUCTION

In Chapter 3, internet banking and cellphone banking – the two electronic self-service channels investigated in this study – were discussed. From the discussion it became clear that internet banking and cellphone banking present similar benefits and banking services; therefore, internet banking and cellphone banking can be considered to be concurrent channels. In Chapter 4, the major technology adoption behaviour theories were reviewed. In addition to these theories, two consumer behaviour theories were presented that could explain the formation of evaluative synergies and dissynergies in the electronic banking context namely, Expectation-transfer Theory and Status quo bias Theory.

The purpose of this chapter is to draw on the discussion in Chapter 3 and the theories in Chapter 4, as well as other technology acceptance literature to develop a conceptual model of the formation of intention to use and the continuance of use intention of cellphone banking in an internet banking context. In order to realise this goal, internet banking beliefs will be identified that could influence the perceived usefulness and perceived ease of use of cellphone banking. Each of the internet banking beliefs will be reviewed to contextualise the construct. This will be followed by a review of literature to identify the general relationship between the construct and perceived usefulness or perceived ease of use in the TAM. Finally, before presenting the hypothesis for each of the cross-channel evaluations, Expectation-transfer Theory or Status quo bias Theory will be presented as the theories underpinning the cross-channel evaluative synergy or dissynergy. Given that there are two cohorts in the study, users of only internet banking and users of both internet banking and cellphone banking, hypotheses will be presented for each of the cohorts.

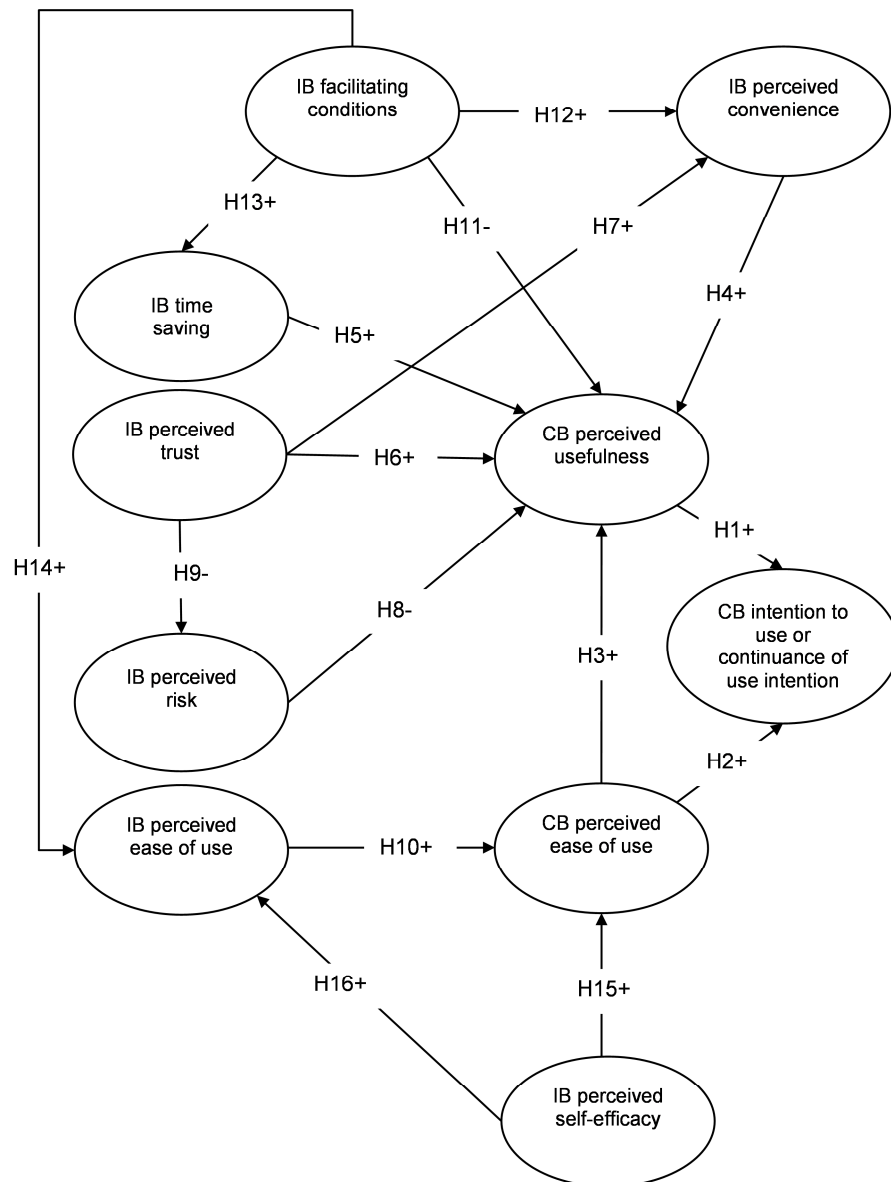
5.2 THE DEVELOPMENT OF THE CONCEPTUAL MODEL

Figure 5.1 depicts the conceptual model of cross-channel cognitive evaluations between internet banking and the formation of intention to use or the continuance of use intention of cellphone banking. In this section each of the constructs in Figure 5.1 will be operationalised, a justification for the inclusion of each construct in the conceptual model

will be provided and the hypothesised relationship(s) with the other constructs in the model will be presented.

FIGURE 5.1

CONCEPTUAL MODEL OF CROSS-CHANNEL COGNITIVE EVALUATIONS BETWEEN INTERNET BANKING AND CELLPHONE BANKING BEHAVIOURAL INTENTIONS



5.2.1 The formation of intention to use and the continuance of use intention of cellphone banking

In this study, the formation of intention to use cellphone banking will be operationalised in the same way as in Gu et al. (2009) and Luarn and Lin (2005). Both Gu et al. (2009) and Luarn and Lin (2005) hypothesise that the perceived usefulness and the perceived ease of use of cellphone banking influence the behavioural intention to adopt cellphone banking

and that perceived ease of use influences perceived usefulness. These hypotheses are all in accordance with TAM theory and the results of previous TAM studies.

The influence of perceived usefulness and perceived ease of use on behavioural intention to continue the use of a specific IT were tested in various studies and positive relationships were confirmed. For example, Limayem and Cheung (2008) found a positive influence of perceived usefulness and perceived ease of use on continued IT usage intention of internet-based learning technologies. In the mobile service context, several studies confirm the positive influence of perceived usefulness and/or perceived ease of use on continuance of use intention. Hong, Thong and Tam (2006) found that perceived usefulness and perceived ease of use have a positive influence on continued mobile internet use and that perceived ease of use has a positive influence on perceived usefulness. The study of Liang and Yeh (2011) also showed that perceived ease of use has a positive influence on the continuance of use intention of mobile games. On the other hand, Kim (2010) investigated the influence of perceived usefulness on mobile data service continuance of use intention and found a positive relationship. Thus, based on the findings of these studies on the formation of the continuance of use intention it is reasonable to assert that the influence of perceived usefulness and perceived ease of use on the continuance of use intention, and the influence of perceived ease of use on perceived usefulness in a continuance of use intention context, will be consistent with the perceived usefulness, perceived ease of use and behavioural intention relationships in other TAM studies.

Considering the literature reviewed on the formation of intention and the continuance of use intention, the following hypotheses are proposed for the users of only internet banking intending to use cellphone banking and the users of both internet and cellphone banking who intend to continue to use cellphone banking. In the hypotheses statements ITU represent intention to use and CUI represent continuance of use intention:

- H_{ITU1} : Perceived usefulness of cellphone banking positively influences intention to adopt cellphone banking
- H_{CUI1} : Perceived usefulness of cellphone banking positively influences the continuance of use intention of cellphone banking
- H_{ITU2} : Perceived ease of use of cellphone banking positively influences intention to adopt cellphone banking

- H_{CU12}: Perceived ease of use of cellphone banking positively influences the continuance of use intention of cellphone banking
- H_{ITU3}: Perceived ease of use of cellphone banking positively influences the perceived usefulness of cellphone banking
- H_{CU13}: Perceived ease of use of cellphone banking positively influences the perceived usefulness of cellphone banking

5.2.2 The perceived convenience and time saving of internet banking as determinants of the perceived usefulness of cellphone banking

The conceptual model (Figure 5.1) illustrates that, in this study, the perceived convenience and time saving of internet banking are hypothesised to positively influence the perceived usefulness of cellphone banking. To justify the inclusion of these two hypotheses, one has to revisit the importance of usefulness perceptions in technology adoption behaviour. The TAM hypothesises that the usefulness perception of an information system (IS) is an important determinant in user adoption behaviour. The results of the meta-analyses studies presented in Table 4.5 and Table 4.7 (see Chapter 4) indicate that usefulness is a stronger determinant in the formation of intention to adopt a technology than ease of use (0.589 versus 0.429 for correlations and 0.505 versus 0.186 for path coefficients). Usefulness also relates to various other constructs in consumer behaviour theories that substantiate the importance of the construct in customer decision-making and adoption of technology. In the following sub-sections, the relationship between usefulness and other constructs related to technology adoption will be discussed briefly.

5.2.2.1 The relation between perceived usefulness and relative advantage (Innovation Diffusion Theory)

The conceptual similarity between perceived usefulness and relative advantage is noted in various studies. Taylor and Todd (1995b: 152) argue that relative advantage (“the degree to which an innovation provides benefits which supersede those of its precursor”) is analogous to the perceived usefulness construct in the TAM. Davis (1989: 320) defines perceived usefulness as “the degree to which a person believes that using a particular system would enhance his or her job performance”. This definition of perceived usefulness follows from the definition of the word ‘useful’, which implies being capable of being used advantageously. In other words, usefulness entails the existence of a positive use-

performance relationship. Karahanna, Ahuja, Srite and Galvin (2002: 329) further pointed out that the definition of usefulness proposed by Davis (1989) at best imply the “benefits which supersede those of its precursor”. Indeed, an innovation must be perceived to fulfil their intended purpose better than their precursors if it is to be adopted (Moore and Benbasat, 1991: 198). Thus, when a technology is useful to the user it fulfils the intended purpose better than precursor technologies or other methods employed by the user. More evidence of the conceptual similarity between perceived usefulness and relative advantage are presented in three empirical studies. These studies are Moore and Benbasat (1991), Kulviwat, Bruner, Kumar, Nasco and Clark (2007) and Kim and Stoel (2004).

In the study of Moore and Benbasat (1991), the items used to measure relative advantage are similar to the items used to measure the usefulness construct of the TAM. As can be seen from Table 5.1, the study of Moore and Benbasat (1991) included items to measure relative advantage that were conceptually similar to the items used to measure usefulness in Davis (1989). This correspondence between item content serves as strong evidence of the conceptual similarity between usefulness and relative advantage.

TABLE 5.1
CORRESPONDING ITEMS USED TO MEASURE RELATIVE ADVANTAGE AND
USEFULNESS

| Moore and Benbasat (1991) | Davis (1989) |
|---|---|
| Using a PWS enables me to accomplish tasks more quickly | Using CHART-MASTER in my job would enable me to accomplish tasks more quickly |
| Using a PWS makes it easier to do my job | Using CHART-MASTER would make it easier to do my job |
| Using a PWS improves my job performance | Using CHART-MASTER would improve my job performance |
| Using a PWS enhances the effectiveness in my job | Using CHART-MASTER would enhance the effectiveness of my job |
| Using a PWS increases my productivity | Using CHART-MASTER in my job would increase my productivity |

In the second empirical study, Kulviwat et al. (2007) included relative advantage as a determinant of usefulness. Kulviwat et al. (2007) argued that relative advantage and usefulness are two distinct concepts and may play complementary roles in shaping adoption attitudes. Once again the items used to measure relative advantage corresponded with the items used to measure the usefulness construct in the TAM. This further confirms the conceptual similarity of the two constructs.

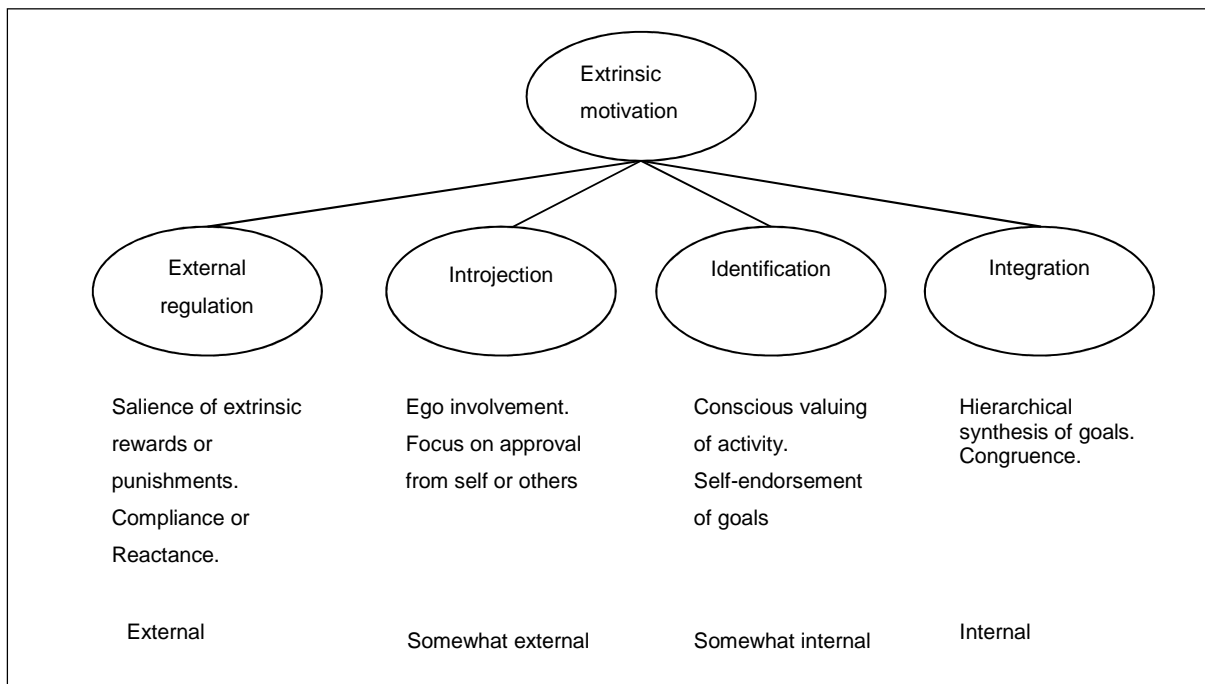
The third empirical example of the correspondence between relative advantage and perceived usefulness is found in the study of Kim and Stoel (2004). In this study a measurement model was proposed in which information fit-to-task, tailor communication, online completeness and relative advantage are first-order factors and usefulness a second-order factor. The four first-order factors loaded significantly onto usefulness the second-order factor. Thus, the measurement model provided evidence that relative advantage can be a dimension of usefulness.

5.2.2.2 *The relationship between usefulness and extrinsic motivation (Motivational model)*

Usefulness is also considered to be related to the extrinsic motivation construct in Motivational Theory (Teo, Lim and Lai, 1999; Venkatesh, Speier and Morris, 2002). Extrinsic motivation is a construct that refers to an activity executed in order to realise separate outcomes. Extrinsic motivation is therefore different from intrinsic motivation, which refers to doing an activity simply for the enjoyment of the activity itself, rather than for its instrumental value (Ryan and Deci, 2000: 60).

According to Ryan and Deci (2000) there are four categories of extrinsic motivation (see Figure 5.2). External regulation is the least autonomous form of extrinsic motivation. External regulation is behaviours performed to satisfy an external demand or obtain an externally imposed reward contingency. Introjected regulation describes a type of internal regulation that is still quite controlling because people perform such actions with the feeling of pressure in order to avoid guilt or anxiety or to attain ego-enhancements or pride. A classic form of introjection is ego involvement, in which a person performs an act in order to enhance or maintain self-esteem and the feeling of self-worth.

FIGURE 5.2
CATEGORIES OF EXTRINSIC MOTIVATION



Source: Adapted from Ryan and Deci (2000)

Identification is a more autonomous, or self-determined, form of extrinsic motivation. Identification means a person has identified with the personal importance of a behaviour and has thus accepted its regulation as his or her own. The most autonomous form of extrinsic motivation is integrated regulation. Integrated regulation occurs through self-examination and bringing new regulations into congruence with one's other values and needs. The more one internalises the reasons for an action and assimilates them to the self, the more one's extrinsically-motivated actions become self-determined.

The similarity between usefulness and extrinsic motivation can be pointed out at the conceptual level, as well as the operational level. At the conceptual level both extrinsic motivation and perceived usefulness emphasises an individual's personal gain associated with using a technology (Venkatesh et al., 2002). Similarity at the operational level is illustrated by the study of Davis, Bagozzi and Warshaw (1992) in which the same six items are used that Davis (1989) used to measure usefulness.

More evidence of the strong relationship between usefulness and extrinsic motivation is the framework for consumers' intentions to shop online (Monsuwe, Dellaert and Ruyter, 2004). In the framework of Monsuwe et al. (2004: 107) two latent dimensions of the usefulness construct are proposed. The two dimensions are 'consumer return on

investment' and 'service excellence'. Both of these two dimensions are extrinsic, value-based perceptions. The work of Monsuwe et al. (2004) shows that extrinsic motivation underpins usefulness.

5.2.2.3 *The perceived convenience and time saving of internet banking as determinants of the perceived usefulness of cellphone banking*

A major extrinsic motivation for the use of internet banking is the convenience associated with internet banking (see Table 3.1). The concept of convenience has five dimensions (Yoon and Kim, 2007: 104):

- Time dimension. A product or service may be provided at a time that is more convenient for the customer.
- Place dimension. A product or service may be provided in a place that is more convenient for the customer.
- Acquisition dimension. Firms make it easier for the customer, financially and otherwise, to purchase their products.
- Use dimension. A product or service may be made more convenient for the customer to use.
- Execution dimension. The most obvious convenience is simply having someone provide the product or service to the consumer.

Yoon and Kim (2007) argue that in the context of using technology, the 'acquisition' dimension and the 'use' dimension are not necessarily relevant. Yoon and Kim (2007) reason that in the use of technology for a specific service there is no acquisition and that the 'use' dimension is more closely related to ease of use, which is a construct in the TAM. Since the convenience of internet banking services is an important construct in this study, the construct will be operationalised in line with the view of Yoon and Kim (2007). Thus, in this study, the acquisition dimension will not be considered to be one of the dimensions of convenience in this study. Similar to the study of Yoon and Kim (2007) the TAM is also the salient theory in this study. Therefore, also in line with Yoon and Kim (2007), the 'use' dimension is excluded to enhance the discriminant validity between the convenience construct and the ease of use of internet banking construct in the study. In this study, the three remaining dimensions of the convenience of internet banking are defined as follows:

- Time dimension. The degree of perception held by a client that he or she can use internet banking to accomplish their banking transactions at a time that is convenient to them.
- Place dimension: The degree of perception held by a client that he or she can use internet banking to accomplish their banking transactions at a place that is convenient to them.
- Execution dimension: The degree of perception held by a client that he or she finds internet banking convenient for banking transactions.

In line with the dimensions of convenience identified above, convenience is defined in this study as the degree that a client believes that internet banking enables him/her to do banking transactions at a time and place that is convenient to him/her, as well as that internet banking is convenient for banking transactions.

In Table 3.3 convenience was listed as a major benefit of cellphone banking. The study of Yoon and Kim (2007) showed that convenience has a strong positive influence on usefulness. Given the similarities between internet and cellphone banking it is anticipated that a client may infer that because internet banking is convenient, cellphone banking will also be convenient, which influences perceptions of usefulness of cellphone banking. Thus, Expectation-transfer Theory underpins the perceived internet banking convenience – perceived usefulness of cellphone banking relationship and a cognitive evaluative synergy is expected. Therefore, the following hypotheses are addressed in this study:

H_{ITU4}: The perceived convenience of internet banking positively influences the perceived usefulness of cellphone banking

H_{CU4}: The perceived convenience of internet banking positively influences the perceived usefulness of cellphone banking

Another benefit in Table 3.1 which is strongly associated with the usefulness of ubiquitous electronic services is time saving (see e.g. Mallat, Rossi, Tuunainen and Öörni (2009) and Pagani (2004)). Generally speaking, time saving implies spending less time to complete a specific task than usual. Therefore, in this study the perceived time saving of internet banking is defined as the belief that using internet banking reduces the time spent doing banking activities. Considering the similarities between internet banking and cellphone banking, it is expected that cellphone banking will also deliver the time saving benefit as it

too is a ubiquitous electronic service. Therefore, similarly to the perceived internet banking convenience – perceived cellphone banking usefulness relationship, it is anticipated that an evaluative synergy, underpinned by expectation-transfer, exists between internet banking time saving beliefs and cellphone banking usefulness beliefs. Therefore, the following hypotheses are included in the study:

H_{ITU5}: Perceived time saving of internet banking positively influences the perceived usefulness of cellphone banking

H_{CU5}: Perceived time saving of internet banking positively influences the perceived usefulness of cellphone banking

5.2.3 Perceived trust in internet banking as a determinant of the perceived usefulness of cellphone banking

Trust is not only a central tenant in business relationships and transactions, but also a key factor in online commerce and mobile commerce. This proposition can be substantiated by several studies that investigated online commerce and mobile commerce adoption. For example, the study of Ha and Stoel (2009) on the formation of online shopping intentions found that perceived trust has a positive influence on the perceived usefulness of online shopping. Likewise, in the online banking context, Yousafzai, Pallister and Foxall (2009) found that perceived trust has a positive influence on intention to use online banking. Similar to the influence of trust in the online commerce domain, studies on mobile commerce have also demonstrated that trust plays an important role in the adoption of mobile commerce. For example, Kim et al. (2009a) found that initial trust in cellphone banking has a significant influence on intention to adopt cellphone banking. To provide an understanding of how trust perceptions are formed by users in an e-commerce context, it is necessary to discuss trust beliefs, as well as the sources of trust in an e-commerce context.

5.2.3.1 *Trust beliefs*

Trust beliefs can be defined as the confident trustor perception that the trustee has attributes that are beneficial to the truster (McKnight, Choudhury and Kacmar, 2002: 337). Although many types of belief can be identified from literature, three trusting belief types are more prominent: competence, benevolence and integrity (Gefen, Karahanna and Straub, 2003a: 60; McKnight et al., 2002: 337; Zhang and Zhang, 2005; Zhao, Koenig-

Lewis, Hanmer-Lloyd and Ward, 2010: 14). Another trust belief, although less often referred to in the literature, is predictability.

Competence refers to the belief of the trustor that the trustee has the power to fulfil transactional obligations (Joubert, 2006: 38). In the case of the internet relationship, the consumer would believe that the vendor can provide the goods and services in a proper and convenient way (McKnight and Chervany, 2001: 49). In the context of internet banking, competence can be operationalised as the client's belief that the bank has the required infrastructure and processes in place to deliver the promised internet banking services.

Benevolence refers to the expectation of the truster, i.e., the assumption that the trustee will consistently "act fairly", care for the truster, act in his/her best interest and not take advantage of the truster, even if the opportunity arises (Joubert, 2006; McKnight and Chervany, 2001; Urban, Sultan and Qualls, 2000). Perceptions of characteristics demonstrated by the vendor include goodwill, responsiveness, and concern (Salam, Iyer, Palvia and Singh, 2005: 76). In the context of internet banking, benevolence can be operationalised as the client's belief that the bank will deliver the internet banking services in a way that is in the best interest of the client.

Mayer, Davis and Schoorman (1995: 719) view integrity as the trustor's perception that the trustee adheres to a set of principles that the truster finds acceptable. Joubert (2006), citing Chervany et al. (2001), defines integrity as the belief of the trustor that the trustee makes good faith agreements and fulfils promises. Furthermore, integrity is more about the character of the trustee than about the trustor-trustee relationship (McKnight and Chervany, 2001: 49). In the context of internet banking, integrity can be operationalised as the client's belief that the bank will deliver the internet banking service as promised.

Predictability refers to the belief that the other party's actions (good or bad) are consistent enough for one to forecast them in a given situation (McKnight and Chervany, 2001: 49). Internet users with high trusting belief-predictability would believe that they can predict the internet vendor's future behaviour in a given situation. This belief-predictability translates into trust in the internet vendor or not. In the context of internet banking, trusting belief-predictability can be operationalised as the client's belief that the bank is so consistent in delivering the internet banking service that he/she is able to predict the quality of the internet service when he/she uses it in future.

5.2.3.2 Sources of trust

According to Turban, King, Lee, Liang and Turban (2010: 199) a consumer's trust in electronic commerce is based on three considerations; namely, trust in the internet as a channel, trust in the vendor and trust in the business and regulatory environment. The distinction between trust in the electronic vendor (e-vendor) and trust in the internet as a channel for monetary transactions have been made by Pavlou (2003), Kim and Prabhakar (2004) and Grabner-Kräuter and Kaluscha (2003). More importantly, these two sources of trust (trust in the e-vendor and the internet) are distinct, but non-separable facets of trust in e-commerce (Pavlou, 2003).

Trust in the e-vendor can be explained by the trust beliefs discussed in the beginning of this section. In other words, perceptions about the competence, benevolence, integrity and predictability of the e-vendor influence a consumer's perceptions of trustworthiness of the e-vendor. In addition to these factors, Cheung and Lee (2006) established that the e-vendor's security control and privacy control also influences a consumer's trust in online shopping. Perceived security control entails the perception that an internet merchant has the ability to fulfil security requirements, while perceived privacy control refers to an internet merchants ability to protect consumers' personal information, collected from its electronic transactions, from unauthorised use or disclosure.

However, the beliefs discussed in the previous paragraph are not relevant when consumers assess the trustworthiness of the internet as a channel for monetary transactions. The factors that are relevant in consumers' evaluations of the trustworthiness of the internet for monetary transactions are: (1) the perceived technical competence of the system, (2) the perceived performance level of the system, and (3) the human operator's understanding of the underlying characteristics and processes governing the system's behaviour. The technical competence of the system is the ability of the system to perform the tasks it was designed to perform, whilst the perceived performance level includes perceptions of parameters such as the speed of the system, as well as its reliability and availability.

Trust in the business and regulatory environment entails consumer trust in business culture, consumer protection and effective law (Turban et al., 2010: 199). Thus, trust in the business and regulatory environment relates to institution-based trust. McKnight and Chervany (2001) define institution-based trust as one's beliefs that favourable conditions are in place that are conducive to situational success in an endeavour of one's life. In the

internet context, 'favourable conditions' refer to the legal, regulatory, business and technical environment perceived to enhance the probability of success. Institution-based trust can be divided into two dimensions: structural assurance and situational normality. Structural assurance is about beliefs that structures like guarantees, regulations, promises, legal resources or other procedures are in place to ensure success (McKnight et al., 2002: 339). For example, a consumer with high web-related structural assurance would believe that legal and technological internet protections like data encryption safeguard a consumer from loss of privacy, identity, or money. Situational normality, on the other hand, means one believes that the environment is in proper order and success is likely because the situation is normal or favourable. McKnight et al. (2002) explain practically that a consumer who perceives high situational normality would believe the internet environment is appropriate, well ordered, and favourable for conducting personal business. In other words, the user makes an assessment that the transaction will be a success, based on how usual or customary the situation appears to be, or if the interaction with the vendor is normal compared with similar sites (Gefen et al., 2003a).

5.2.3.3 The relationship between perceived internet banking trust and the perceived usefulness of cellphone banking

The influence of trust beliefs on perceived usefulness has been confirmed in several internet commerce studies and in the mobile banking context. For instance, the study of Gu et al. (2009) provides empirical evidence that trust perceptions influence the perceived usefulness in the cellphone banking context. In a similar vein, the positive influence of trust in the online retailer on the usefulness of the website was confirmed by Gefen et al. (2003a). The argument underpinning the trust – perceived usefulness hypothesis in Gefen et al. (2003a) is that the consumer will be able to successfully accomplish their tasks on the website only with an e-vendor who can be trusted (e.g., search for product information and place an order). Thus, trust in the e-vendor provides a measure of subjective guarantee that the e-vendor can make good on its side of the deal, behave as promised, and genuinely care. All of these trusting beliefs increase the likelihood that the consumer will gain the expected benefits from the website through which the e-vendor communicates with its customers. The trust – perceived usefulness relationship was also hypothesised and confirmed in other online service studies such as Ha and Stoel (2009) and Pavlou (2003). Similar to the findings in online services studies, trust beliefs also had a positive influence on perceived usefulness in the mobile banking context. Gu et al. (2009)

investigated the influence of trust on perceived usefulness in the mobile banking context. Gu et al. (2009) justified the inclusion of trust as a predictor of perceived usefulness by contending that “Trust helps reduce fraud and potential risk caused by opportunistic behaviour... and provides users the ultimate benefits such as getting more reliable banking services from honest banks”. The results of their study confirmed that trust exerts a positive influence on the perceived usefulness of mobile banking.

In this study it is hypothesised that the perceived trust in internet banking has a positive influence on the perceived usefulness of cellphone banking. This hypothesis is based on several arguments. Firstly, empirical studies confirm the positive influence of perceived trust on perceived usefulness and thus demonstrate that perceived trust is a determinant of perceived usefulness. Secondly, it is argued that expectation-transfer applies to the perceived internet banking trust – perceived cellphone banking usefulness relationship resulting in an evaluative synergy. Trust transfer is a cognitive process that may arise from one familiar context to another new context. More importantly, inter-channel trust transfer can be from offline to online or from online to mobile channels (Lin, Lu, Wang and Wei, 2011). Indeed, in line with inter-channel trust transfer proposition the results of the study of Lin et al. (2011) showed that trust in the online environment (online brokerage service) has a positive influence on the perceived usefulness of a mobile brokerage service. Therefore, the following hypotheses are addressed in this study:

- H_{ITU6}: Perceived trust in internet banking positively influences the perceived usefulness of cellphone banking
- H_{CU6}: Perceived trust in internet banking positively influences the perceived usefulness of cellphone banking

5.2.4 Perceived trust in internet banking as a determinant of the perceived convenience of internet banking

In the previous section, theoretical arguments and empirical evidence were presented on the perceived trust – perceived usefulness relationship. Because of the strong relationship between usefulness and extrinsic motivation (see the discussion in section 5.2.2.2.), it is argued that perceived trust in internet banking has a positive influence of the perceived convenience of internet banking. Besides, if a client cannot trust internet banking, he/she is not likely to find it convenient to use. Therefore, the following hypotheses are addressed in this study:

H_{ITU7}: Perceived trust in internet banking positively influences the perceived convenience of internet banking

H_{CUI7}: Perceived trust in internet banking positively influences the perceived convenience of internet banking

5.2.5 The perceived risk of internet banking as a determinant of the perceived usefulness of cellphone banking

Risk can be operationalised in different ways (Gefen, Rao and Tractinsky, 2003b: 4). For example, Lu, Hsu and Hsu (2005) define it as the degree to which a user experience uncertainty and anticipate adverse consequences of using online application services in areas of financial risk, physical risk, functional risk, social risk, time-loss risk, opportunity cost risk, and information risk. Pavlou and Gefen (2004) define it as the subjective belief that there is some probability of suffering a loss in pursuit of a desired outcome. Featherman and Pavlou (2003) define it as a potential loss in the pursuit of a desired outcome of using an e-service. Lim (2003) describes risk as the nature and amount of risk perceived by a consumer in contemplating a particular purchase action. From the above definitions it can be contended that risk equals the possibility of some kind of loss or undesired outcome.

A review of the literature reveals that researchers have identified nine dimensions of perceived risk namely, financial risk, performance risk, social risk, physical risk, time-loss risk, personal risk, privacy risk and source risk. Taking into account that the form of risk depends on the prevailing situation (Mayer et al., 1995: 724), it can be argued that not all risk dimensions may be relevant in the internet banking and cellphone banking context. Thus, to understand risk in an internet banking context and cellphone banking context it is necessary to point out which risk dimensions are relevant and which not.

The relevance of each risk dimension in an internet banking context can be described as follows:

- Perceived financial risk (also referred to as economic risk). The possibility of monetary loss arising from online shopping (Lim, 2003). In the internet banking context clients are also concerned about losing money while performing transactions or transferring money over the Internet (Kuisma, Laukkanen and Hiltunen, 2007). Thus, financial risk is relevant in the internet banking context. Financial risk for internet banking users is further enhanced because internet

banking transactions lack the assurance provided in traditional settings through formal proceedings and receipts. Therefore, clients often experience difficulties when asking for compensation when transaction errors occur (Kuisma et al., 2007).

- Perceived performance risk. The possibility that the purchased products may not work properly or can be used for only a short period of time (Lim, 2003). In the internet banking context clients could face the risk that banks' front-end or back-end systems are not functioning properly, resulting in incomplete transactions. Therefore, performance risk is also relevant in the internet banking context.
- Perceived social risk. Individuals' perception of other people regarding their online shopping behaviour (Lim, 2003). The use of internet banking presents no risk for one's reputation. Thus, it is asserted that using internet banking poses no social risk for an individual. This contention is consistent with the view of McCole, Ramsey and Williams (2010) who do not consider social risk as a type of risk related to internet banking.
- Perceived physical risk. The possibility that products may be harmful to an individuals' health or that products do not look as good as the individual expects (Lim, 2003). According to Featherman and Pavlou (2003: 454) the use of e-services does not incur any threat to human life. Thus, it is argued that the use of internet banking poses no direct physical risk for individuals. The second element of the definition, 'products do not look as good as the individual expects' does also not apply to internet banking. In other words, the attractiveness of the interface does not affect the physical attractiveness of the user. So, overall internet banking poses no social risk for users.
- Perceived time-loss risk. The possibility that individuals may waste time because of their shopping behaviour (Lim, 2003). McCole et al. (2010) define time-loss risk as the loss of time due to the delays of receiving payment or the difficulty of navigation. Time loss may therefore occur due to a disorganised or confusing website and pages that are too slow to download. McCole et al. (2010) also argue that time-loss may be related to the length of time involved in waiting for the website and learning how to utilise the online banking website. Thus, given the overall scope of time-loss risk it may be relevant in the internet banking context.

- Perceived personal risk. The possibility that individuals may be harmed because of their purchase behaviour (Lim, 2003). Internet banking does not present opportunities for personal risk. This view is consistent with the contention of McCole et al. (2010) who did not consider personal risk as a type of risk related to internet banking.
- Perceived privacy risk. The possibility that online businesses could collect data about individuals and use it inappropriately (Lim, 2003). The collection of the information can be voluntary or surreptitious (Dinev and Hart, 2005: 9). The voluntary dimension of information collection usually entails the provision of personal information during online transaction. Bank clients' privacy concerns have been pointed out in studies such as Sohail and Shaikh (2008) and Zhao, Stuart, Ward and Goode (2008) as an important factor influencing the adoption of internet banking. Thus, privacy risk for the user can be present in the internet banking context.
- Perceived source risk. The possibility that individuals may suffer because the business from which they buy products that are not trustworthy (Lim, 2003). Inadequate privacy and security of an internet banking service could lead to financial losses for users. Thus, internet banking services that are not trustworthy present source risk for the users. Perceived sources risk in the internet banking context can be operationalised as the possibility that a client could suffer financial losses due to inadequate infrastructure and processes to secure and maintain privacy of client information.

With regard to cellphone banking, the study of Luo et al. (2010) confirms that not all types of risk are relevant in the cellphone banking context. In their study, Luo et al. (2010) found that performance risk, financial risk, time risk, psychological risk, privacy risk and overall risk load significantly as first-order factors on a higher-order factor (Risk), whilst social risk and physical risk did not load significantly on the higher-order factor.

Clients' major concerns regarding internet and cellphone banking relate to privacy and security concerns. Thus, it is appropriate to review privacy and security concerns for internet and cellphone banking users.

5.2.5.1 *The origins and nature of consumers' privacy concerns in electronic services context*

Privacy is the ability of an individual to control the terms under which their personal information is acquired and used (Culnan and Armstrong, 1999: 105). Information privacy is the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others (Malhotra, Kim and Agarwal, 2004: 337). Information privacy concerns refer to an individual's subjective views of fairness within the context of information privacy (Malhotra et al., 2004: 337).

Privacy concerns often arise when new IT with enhanced capabilities for collection, storage, use, and communication of personal information emerge (Liu, Marchewka, Lu and Yu, 2005:90). Moreover, privacy concern is the most frequently cited reason why individuals do not use the Internet (Dinev and Hart, 2005: 7). Cunningham, Gerlach and Harper (2005: 168) refer to privacy risk as the major impediment to the wider adoption of internet banking.

To measure individuals' information privacy concerns, most researchers have used a one-dimensional global information privacy concern (GIPC) scale. The GIPC scale is useful in understanding privacy concerns in general, but does not reveal specific dimensions of such concerns. Hence, viewing information privacy concerns as a multi-dimensional construct provides a richer understanding of an individual's privacy concerns. In the study of Smith, Milberg and Burke (1996) four dimensions of an individual's information privacy concern are identified: (1) extensive amounts of personally identifiable information are being collected and stored in data bases, (2) information is collected from an individual for the use of one purpose but is used without authorisation from the individual for another purpose, (3) data are readily available to people not properly authorised to view or work with this data, and (4) protections against deliberate and accidental errors in personal data are inadequate. Thus, the four dimensions identified in the study of Smith et al. (1996) are collection, unauthorised secondary use, improper access and errors.

In the study of Castaneda, Montoso and Luque (2007) a review of literature on the multi-dimensionality of the privacy concern construct also revealed four dimensions namely, knowledge of collection of information, knowledge of use of information, control of collection of information and control of use of information. In similar vein, Malhotra et al. (2004) identified three dimensions of internet users' information privacy concern from literature: the degree to which an internet user is concerned about the collection of

information online, the user's control over the collected information, and the user's awareness of how the collected information is used. The subsequent empirical testing of the structural equations model of Malhotra et al. (2004: 349-350) indicated that the user's control over the collected information and the user's awareness of how the collected information are used are the most important dimensions underpinning the respondents' internet information and privacy concerns. Considering the similarities and subtle differences between the three views on the multi-dimensionality of the information privacy concern construct, the view of Castaneda et al. (2007) that the dimensions of 'privacy concerns' are knowledge of collection of information, knowledge of use of information, control of collection of information and control of use of information is considered to be comprehensive and relevant in the context of the study.

The definition of privacy concern in the internet banking context by Mukherjee and Nath (2003: 7) namely, "privacy violation and lack of confidentiality, which is the misuse and lack of control of personal information subsequent to the transaction", focus more on the control of use of information collected. Pikkarainen, Pikkarainen, Karjaluoto and Pahnla (2004) view privacy as users wanting to be aware of data being recorded, the type of data that are collected, the purpose for the collecting of data, for how long the data is retained, how the data is recorded, and for what purposes their data is processed. Hence, the privacy concern of internet banking users include knowledge of who is collecting the information and why, what information is collected and how it will be used. This operationalisation is consistent with the dimension of information privacy concerns as proposed by Castaneda et al. (2007).

In South Africa, the Electronic Communications and Transactions Act 2002 provides the regulatory environment for the protection of personal information in internet and cellphone banking. The statute specifies the following requirements that banks must adhere to:

- A data controller (the bank) must have the express written permission of the data subject for the collection, collation, processing or disclosure of any personal information on that data subject unless he or she is permitted or required to do so by law.
- A data controller may not electronically request, collect, collate, process or store personal information on a data subject which is not necessary for the lawful purpose for which the personal information is required.

- The data controller must disclose in writing to the data subject the specific purpose for which any personal information is being requested, collected, collated, processed or stored.
- The data controller may not use the personal information for any other purpose than the disclosed purpose without the express written permission of the data subject, unless he or she is permitted or required to do so by law.
- The data controller must, for as long as the personal information is used and for a period of at least one year thereafter, keep a record of the personal information and the specific purpose for which the personal information was collected.
- A data controller may not disclose any of the personal information held by it to a third party, unless required or permitted by law or specifically authorised to do so in writing by the data subject.
- The data controller must, for as long as the personal information is used and for a period of at least one year thereafter, keep a record of any third party to whom the personal information was disclosed and of the date on which and the purpose for which it was disclosed.
- The data controller must delete or destroy all personal information which has become obsolete.
- A party controlling personal information may use that personal information to compile profiles for statistical purposes and may freely trade with such profiles and statistical data, as long as the profiles or statistical data cannot be linked to any specific data subject by a third party.

5.2.5.2 *The origins and nature of consumers' security concerns in an electronic service context*

Continuous negative publicity about identity theft, unauthorised access to accounts, phishing attacks, and other fraudulent activities have heightened clients' awareness of the potential risk of internet banking (Sarel and Marmorstein, 2005). In the e-banking domain phishing is a common security threat. Mittner (2010) reports that some clients receive phishing emails as frequently as twice a day. Phishing is a criminal, fraudulent process of attempting to acquire confidential information such as user names, passwords, and credit

card details by masquerading as a trustworthy entity such as a well-known bank or credit card company usually through e-mail (Turban et al., 2010: 485). In a phishing 'attack' the user is directed to a bogus website that looks and feels almost identical to the legitimate one and is requested to submit confidential information. Phishing attacks lead to identity theft, which is fraud that involves stealing the identity of a person and then the use of that identity by someone pretending to be someone else in order to steal money or get fraudulent benefits. Although rapid developments in technology have made significant contributions to securing the Internet for electronic business, there still are many challenges in this area between service providers and sceptical consumers (Mattila and Mattila, 2005: 90).

Online security is a major issue for all financial institutions (Sarel and Marmorstein, 2005). The introduction of information technologies has always been accompanied by security concerns, and the future of electronic commerce depends on controlling information security threats, enhancing consumer security perceptions and building trusts (Chellappa and Pavlou, 2002: 358).

In the internet banking adoption study of Wang et al. (2003), security was defined as the protection of information or systems from unsanctioned intrusions or outflows. This definition of internet banking security in Wang et al. (2003) is consistent with the definition of security by Vijayasarathy (2004) who defines security in online transactions as being concerned with the inadvertent compromises of consumer data to a third party (e.g. hacker and identity theft). Wang et al. (2003) further comment that the perception of users concerning the extent to which internet banking systems ensure that their transactions are conducted without any breach of security, is a very important consideration that will affect internet banking use. In the cellphone banking context, security is also a very important consideration. Brown et al. (2003) stated that the need for security of personal details and financial information is critical to the success of cellphone banking.

In the e-commerce context, a security threat is a "circumstance, condition, or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, modification of data, denial of service, and/or fraud, waste or abuse (Belanger, Hiller and Smith, 2002: 249). From the consumer's perspective, security threats include economic hardship due to damages to privacy (loss of information) as well as thefts, for example, of credit card information and authenticating the identity of the web site (Belanger et al. (2002: 249).

Internet users who transact online, face security threats in access, modification, or deletion of critical information during transmission (Araujo and Araujo, 2003: 7). Mattila and Mattila (2005: 92) agree that the security requirements are under scrutiny during the transport of data (confidentiality and data integrity). Chellappa and Pavlou (2002: 359) define this perceived information security as the subjective probability with which consumers believe that their personal information will not be viewed, stored or manipulated during transit, in a manner consistent with their confident expectations in the internet banking context. Hence, the only proposed dimension of perceived risk of the internet is security risk, which can result in privacy and financial loss.

The Information Assurance (IA) model provides a framework for protection of information systems against unauthorised access to or modification of information that is stored, processed, or sent over a network. According to the IA model the security of electronic commerce can be assessed by the following three components (Turban et al., 2010): These components are:

- Confidentiality. Keeping information that is sensitive and private from unauthorised individuals, entities, or computer software processes. In other words, data privacy.
- Integrity. The assurance that data are accurate or that the message has not been altered. In other words, the stored data has not been modified without the authorisation. According to Turban et al. (2010) the integrity function detects and prevents the unauthorised creation, modification, or deletion of data or messages.
- Availability. The assurance that access to the data, the web site, or other electronic commerce services is timely, available, reliable, and restricted to authorised users.

5.2.5.3 *The relationship between internet banking risk perceptions and the perceived usefulness of cellphone banking*

Perceived risk can be an important barrier to consumer acceptance of e-services (Featherman and Pavlou, 2003). If consumers perceive some risk in using an electronic service, it will reduce the usefulness of the service (Gefen et al., 2003a; Lu et al., 2005). In the study of Horst, Kuttschreuter and Gutteling (2007) a negative influence was confirmed between the risk perception of an e-service and the usefulness of an e-service. The formulation of the internet banking trust – cellphone banking usefulness hypotheses were based on Expectation-transfer Theory and the concept of inter-channel trust transfer in Lin

et al. (2011). Given the high similarity between internet banking and cellphone banking, beliefs about the risk of internet banking can be generalised to cellphone banking. Furthermore, considering that trust is a function of the degree of risk, it is reasonable to infer that inter-channel risk transfer may also arise between internet and cellphone banking. And lastly, previous research confirms a negative relationship between risk perceptions and perceived usefulness in e-services adoption. Considering the arguments presented here, the following evaluative dissynergy hypotheses are considered in this study:

H_{ITU8}: Perceived risk of internet banking negatively influences the perceived usefulness of cellphone banking

H_{CUI8}: Perceived risk of internet banking negatively influences the perceived usefulness of cellphone banking

5.2.6 The perceived trust in internet banking as a determinant of the perceived risk of internet banking

Researchers have different views on the relationship between trust and risk (Lim, 2003: 217). The four main views are presented in Figure 5.3.

Case A illustrates the moderating relationship of risk on the trust – willingness to buy relationship. According to Gefen et al. (2003b) this relationship has been tested once and the hypothesis was rejected.

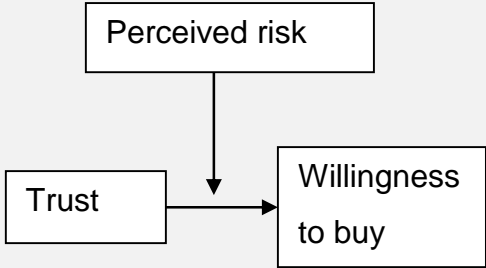
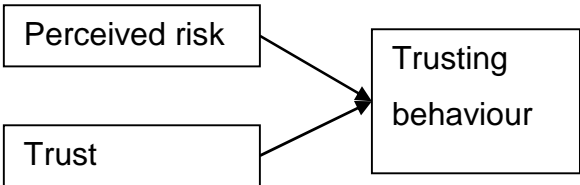

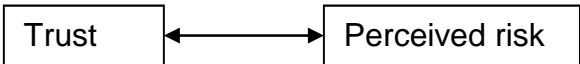
Case B models the independent relationship of trust and risk on trusting behaviour. Gefen et al. (2003a) point out that among the studies that investigated both risk and trust, there are some that hypothesise an effect of trust and risk on behaviour without hypothesising a relationship between trust and risk, and that both simultaneously affect behaviour.

Case C models the mediating relationship, trust affects perceived risk, which affects behaviour. This was posited by Jarvenpaa et al. (1999, 2000), cited by Gefen et al. (2003a), who suggested the perceived risk of a situation is influenced by perceived trust, which in turn, affects behaviour. The limitation of this view is that it only explains that risk mediates trust.

Case D provides an all-inclusive view in that risk mediates trust and trust mediates risk. Mitchell (1999) in Lim (2003) argued that perceived risk is a necessary antecedent for trust

to be operative and an outcome of trust building is a reduction in the perceived risk of the transaction or relationship.

FIGURE 5.3
RELATIONS BETWEEN PERCEIVED RISK AND TRUST

| Case | Description | References |
|------|--|--|
| A |  <pre> graph TD PR[Perceived risk] --> WB[Willingness to buy] T[Trust] --> WB </pre> | <p>Stewart (1999), cited by Lim (2003)</p> <p>Grazioli and Wang (2001), cited by Gefen et al. (2003b: 8)</p> <p>Mayer et al. (1995)</p> |
| B |  <pre> graph LR PR[Perceived risk] --> TB[Trusting behaviour] T[Trust] --> TB </pre> | <p>Kim and Prabhakar, cited by Lim (2003)</p> <p>Gefen et al. (2003a: 7)</p> |
| C |  <pre> graph LR T[Trust] --> PR[Perceived risk] </pre> | <p>Cheung and Lee (2001), cited by Lim (2003)</p> <p>Pavlou (2003)</p> <p>Jarvenpaa et al. (1999, 2000), cited by Gefen et al. (2003a)</p> |
| D |  <pre> graph LR T[Trust] <--> PR[Perceived risk] </pre> | <p>Mitchell (1999), cited by Lim (2003)</p> |

For practical reasons, Case C is adopted as the trust – risk relationship in the conceptual model of this study. In other words, it is contended that trust beliefs reduce risk perceptions. Although Case D is also a plausible model for the trust – risk relationship, it is a non-recursive model, i.e. it contains a reciprocal relationship. Non-recursive models

require additional restrictions for the model to be identified, for the stability of estimated reciprocal effects, and for the interpretation of measures of variation accounted for in the endogenous variables (Shah and Goldstein, 2006). Thus, due the complexity surrounding a non-recursive model, the more practical trust – risk relationship depicted in Case C is selected for this study.

In the internet banking context, several studies provide empirical support for the negative influence of perceived trust on perceived risk. For example, Yousafzai et al. (2009) found in their study of 441 internet banking users that perceived trust has a negative influence on perceived risk. Likewise, Zhao et al. (2010) found that perceived trust in internet banking has a negative influence on the perceived risk of internet banking. Thus, the following hypotheses are investigated in this study:

H_{ITU9}: Perceived trust in internet banking negatively influences the perceived risk of internet banking

H_{CUI9}: Perceived trust in internet banking negatively influences the perceived risk of internet banking

5.2.7 Perceived ease of use of internet banking as a determinant of the perceived ease of use of cellphone banking

In Chapter 4 (section 4.2.4), perceived ease of use was defined as the degree to which a person believes that using the system will be free of effort. Perceived ease of use measures a user's assessment of ease of use and ease of learning. Therefore, perceived ease of use deals with user motivation, which is based on the assessment of the intrinsic aspects of using information technology (Gefen and Straub, 2000). More importantly, the TAM posits that perceived ease of use is a salient belief in the adoption of technology.

In the Internet context, some researchers have identified specific dimensions of the ease of use of a web site such as information that is easy to read and understand; ease of operation (intuitive operations); and navigation (ease of understanding) of a website (Loiacono, Watson and Goodhue, 2007). According to Collier and Bienstock (2006), ease of use has been characterised as the customer's ability to use as few "clicks" as possible to get to the information needed. They point out that navigation aids on a website (such as menus) is therefore a key aspect of ease of use.

To date, the empirical validation of the dimensions of the ease of use construct has received little attention. Only the study of Loiacono et al. (2007) provide strong empirical support for the dimensions of ease of use. The study of Loiacono et al. (2007) attempted to develop a WebQual instrument for consumer evaluation of a website. In their study, they followed an item identification process, followed by an exploratory factors analysis (EFA) and a confirmatory factor analysis (CFA) to identify the first-order factors (dimensions) for usefulness, ease of use and entertainment. The process followed to develop a scale for usefulness, ease of use and entertainment was also implemented to develop a scale for the unidimensional factors in Loiacono et al. (2007) namely, trust and response time. The results of the study of Loiacono et al. (2007) provide empirical support that intuitive operations and ease of understanding are indeed two dimensions of website ease of use. Given the similarity between internet banking and cellphone banking, it is reasonable to argue that intuitive operations and ease of understanding should also be two dimensions of ease of use in the cellphone banking context.

Based on the contention that the process of completing a banking transaction via cellphone banking is very similar as to conducting the same transaction via internet banking, it is hypothesised in this study that the perceived ease of use of internet banking has a positive influence on the perceived ease of use of cellphone banking. The perceived ease of use of internet banking – perceived ease of use of cellphone banking hypothesis draws on Expectation-transfer Theory. Internet banking and cellphone banking are very similar (see section 4.3.1). Thus, bank clients can make generalisations regarding the ease of use from the internet banking context to the cellphone banking context. The following evaluative synergy hypotheses are thus considered:

H_{ITU10}: Perceived ease of use of internet banking positively influences the perceived ease of use of cellphone banking

H_{CU10}: Perceived ease of use of internet banking positively influences the perceived ease of use of cellphone banking

5.2.8 Internet banking facilitating conditions as a determinant of the perceived usefulness of cellphone banking

The Decomposed Theory of Planned behaviour (TPB) proposes that facilitating conditions (a component of perceived behavioural control) is an important construct to consider in technology adoption behaviour (see section 4.2.3.). Facilitating conditions relate to the

external resource constraints of the control beliefs structure, whilst self-efficacy refers to an internal control belief (Taylor and Todd, 1995b). Taylor and Todd (1995b: 152-153) point out that the 'facilitating conditions' construct provides two dimensions for control beliefs. The first dimension relates to resource factors such as time and money and the second dimension relates to technology compatibility issues that may constrain usage. However, the preference of favourable facilitating conditions (or the lack thereof) alone is not expected to directly influence system use. According to Venkatesh, Brown, Maruping and Bala (2008) system use is contingent on the consideration of whether, and to what extent, an individual perceives that facilitating conditions will enable systems use in light of other potential behaviour impediments.

Previous studies have demonstrated that facilitating conditions is an important factor in the adoption of internet and cellphone banking. In the study of Tan and Teo (2000) two types of facilitating conditions were identified that could influence the use of internet banking services namely, the availability of government support and the availability of technological support. The inclusion of these two types of facilitating conditions by Tan and Teo (2000) were based on the arguments that internet banking is viewed more favourable in Singapore, because government is a major driving force in the diffusion of information technology and that internet banking will become more feasible as supporting technological infrastructures become easily and readily available. The results of the study of Tan and Teo (2000) showed that only government support had a significant influence on the adoption of internet banking. Hernandez and Mazzon (2007), based on the study of Tan and Teo (2000), also investigated the influence of government support and the availability of technological support as two different types of facilitating conditions in the internet banking context. In their study they found that government support and the availability of technological support are both significant predictors of the adoption intention/continuance of use intention of internet banking.

Zhou, Lu and Wang (2010) contend that facilitating conditions in the cellphone banking context entails the access to skills such as configuring and operating mobile phones so as to connect to the wireless internet and financial resources to bear usage costs such as data service and transaction fees. Otherwise, if users do not have the necessary financial resources and operating skills they will not adopt or use cellphone banking. The results of the study of Zhou et al. (2010) revealed that facilitating conditions does indeed have a positive influence on the adoption of cellphone banking. Gu et al. (2009) also investigated the role of facilitating conditions in the adoption of cellphone banking. They define

facilitating conditions as the external environment helping users overcome barriers and hurdles to use a new information technology. They further argue that bank clients will perceive cellphone banking as easy to use when they recognise that there are environmental conditions to help them learn how to use cellphone banking. The results in their study supported this argument.

Behaviour cannot occur when the facilitating conditions are not present (June, Chun-Sheng, Chang and James, 2003). Because facilitating conditions overcome the barriers to use a technology, facilitating conditions should have a positive influence on the perceived usefulness of cellphone banking (Nel, Boshoff and Raleting, 2012). Empirical results in Nel et al. (2012) and Nel and Raleting (2012) showed that facilitating conditions can have a positive influence on the perceived usefulness of cellphone banking. However, in the current study it is hypothesised that internet banking facilitating conditions exert a negative influence on the perceived usefulness of cellphone banking. In other words, an evaluative dissynergy is hypothesised. The negative relationship is based on the argument that in the internet banking – cellphone banking multi-channel marketing context, positive evaluations of internet banking facilitating conditions will lower the perceived usefulness of cellphone banking. In other words, status quo bias will prevail and clients will place less emphasis on the usefulness of cellphone banking as an additional channel to conduct banking transactions. Therefore, the following hypotheses are addressed in this study:

H_{ITU11}: Internet banking facilitating conditions negatively influence the perceived usefulness of cellphone banking

H_{CUI11}: Internet banking facilitating conditions negatively influence the perceived usefulness of cellphone banking

5.2.9 Internet banking facilitating conditions as a determinant of the perceived convenience and time saving of internet banking

In the previous section it was argued that the required facilitating conditions must be present for the use of a specific technology to enable a person to use the technology, to find the technology easy to use or to find the technology useful. Hence, it is reasonable to assert that without the availability of the required facilitating conditions, an internet banking user cannot experience the benefits of internet banking such as convenience and time saving. Thus, the following hypotheses are considered in this study:

H_{ITU12}: Internet banking facilitating conditions positively influence the perceived convenience of internet banking

H_{CUI12}: Internet banking facilitating conditions positively influence the perceived convenience of internet banking

H_{ITU13}: Internet banking facilitating conditions positively influence internet banking time saving perceptions

H_{CUI13}: Internet banking facilitating conditions positively influence internet banking time saving perceptions

5.2.10 Internet banking facilitating conditions as a determinant of the perceived ease of use of internet banking

Venkatesh (2000), referring to Mathieson (1991), argue that although perceived ease of use could potentially encompass control over resources, it was not made explicit in the operationalisation of perceived ease use. Venkatesh (2000) added that a user's judgment of the difficulty of using a system will incorporate both internal (self-efficacy) and external (facilitating conditions) dimensions. Thus, facilitating conditions should positively influence the perceived ease of use of a system. Several studies in IS confirm the positive relationship between facilitating conditions and ease of use. For example, Venkatesh and Bala (2008) and Venkatesh (2000) found a positive relationship between facilitating conditions and perceived ease of use in a longitudinal study.

Empirical evidence on the influence of facilitating conditions on ease of use perceptions in the internet banking is limited. The study of Hakan (2008) did not implicitly investigate the influence of facilitating conditions on the perceived ease of use of internet banking, but the influence of perceived behavioural control on the perceived ease of use of internet banking. As discussed in Chapter 4, facilitating conditions is one of the dimensions of perceived behavioural control in the Decomposed TPB. Hakan (2008) findings confirm that perceived behavioural control can be a determinant of the perceived ease of use of internet banking. Hence, the study of Hakan (2008) provides some evidence that facilitating conditions may be a determinant of the perceived ease of use of internet banking. However, in the cellphone banking context Gu et al. (2009) did find a significant positive relationship between facilitating conditions and the perceived ease of use of cellphone banking. Considering the context similarity between internet banking and cellphone banking (Luarn and Lin, 2005), it is reasonable to assert that facilitating

conditions exert a positive influence on the perceived ease of use of internet banking. Thus, the following hypotheses are addressed in the study:

H_{ITU14}: Internet banking facilitating conditions positively influence the perceived ease of use of internet banking

H_{CU14}: Internet banking facilitating conditions positively influence the perceived ease of use of internet banking

5.2.11 The internet banking self-efficacy perceptions as a determinant of the perceived ease of use of cellphone banking

According to Bandura (1977) efficacy expectations play a very important role in affecting behaviour. Bandura (1977) defines an efficacy expectation as a conviction that one can successfully execute the behaviour required to produce the outcomes. Thus, efficacy expectations can lead to outcome expectations which can be defined as a person's estimate that a given behaviour will lead to certain consequences. According to Bandura (1977) outcome and efficacy expectations must be differentiated, "because individuals can believe that a particular course of action will produce certain outcomes, but if they entertain serious doubts about whether they can perform the necessary activities, such information does not influence their behaviour".

Bandura (1977) further postulated that self-efficacy expectations differ on three distinct, but interrelated, dimensions. These dimensions are:

- **Magnitude.** Tasks can vary in terms of difficulty. Thus, the efficacy expectations of different individuals may be limited to simpler tasks, extended to moderately difficult ones, or included even the most taxing performances.
- **Generality.** This is the extent to which perceptions of self-efficacy are limited to particular situations (Compeau and Higgins, 1995: 192). Compeau and Higgins (1995) explain that because of generality of self-efficacy beliefs, some individuals may believe that they are capable of performing some behaviour only under a particular set of conditions. The opposite is that other individuals might believe that they can execute the particular behaviour under any set of conditions.
- **Strength.** This refers to the level of conviction in judgment (Compeau and Higgins, 1995: 192). Bandura (1977) points out that weak self-efficacy expectation can be easily extinguished by disconfirming experiences. Oppositely, individuals with

strong expectations of mastery will persevere in their coping efforts despite disconfirming experiences.

Based on the work of Bandura and other researchers, several seminal studies were published on computer self-efficacy – which is a construct closely related to internet banking self-efficacy. Compeau and Higgins (1995: 192) define computer self-efficacy as a judgment of one's capabilities to use a computer. Marakas, Johnson and Clay (2007) differentiate between two types of computer self-efficacy: computer self-efficacy and general computer self-efficacy. Marakas et al. (2007) define computer self-efficacy “as an individual's perception of efficacy in performing specific computer-related tasks within the domain of general computing”. Computer self-efficacy focuses on the task or application level. General computer self-efficacy can be defined as “an individual's judgment of his or her ability to perform across multiple computer application domains”. General computer self-efficacy can be viewed as a product of a lifetime of related experiences and be thought of as a weighted collection of all computer self-efficacies accumulated over time.

Internet banking self-efficacy focuses on self-efficacy at the task/application level and can therefore be operationalised as follows: internet banking self-efficacy is an individual's perception of efficacy in using an internet banking service to manage personal finances. The dimensions of self-efficacy in the context of internet banking self-efficacy are the following:

- **Magnitude.** Magnitude, in the context of internet banking, is gauged in terms of completing difficult and easier internet banking tasks and support levels required to use internet banking effectively. Individuals with high magnitude of internet banking self-efficacy will feel more confident in their ability to complete more difficult internet banking tasks than individuals with low internet banking self-efficacy. Individuals with high magnitude of internet banking self-efficacy may judge themselves as capable of operating with less support and assistance than most. The opposite applies to individuals with low magnitude of internet banking self-efficacy.
- **Generality:** Self-efficacy generality reflects the degree to which judgment is limited to a particular domain of activity (Compeau and Higgins, 1995: 192). Internet banking self-efficacy is unique and domain specific and therefore it is argued that generalisation to other domains (excluding e-banking) is not possible.

- **Strength:** The strength of an internet banking self-efficacy judgment refers to the level of conviction about the judgment, or the confidence an individual has regarding his or her ability to perform various internet banking tasks to manage his/her finances. Thus, individuals with high internet banking self-efficacy will perceive themselves as able to accomplish more difficult tasks on the internet banking site than individuals with low internet banking self-efficacy.

Similar to the formulation of the perceived internet banking ease of use - perceived cellphone banking ease of use hypothesis, it is also hypothesised that due to expectation-transfer, an internet banking user's perceived internet banking self-efficacy has a positive influence on his/hers perceived ease of use of cellphone banking. Again the argument is used that the two services are very similar and that a client's believe in his/her ability to use internet banking will positively influence his/her cellphone banking self-efficacy beliefs. Thus, the perceived internet banking self-efficacy - perceived cellphone banking ease of use relationship draws on Expectation-transfer Theory and a cross-channel evaluative synergy is expected. The following hypotheses are therefore considered in this study:

H_{ITU15}: Internet banking self-efficacy perceptions positively influence the perceived ease of use of cellphone banking

H_{CUI15}: Internet banking self-efficacy perceptions positively influence the perceived ease of use of cellphone banking

5.2.12 Internet banking self-efficacy perceptions as a determinant of the perceived ease of use of internet banking

Previous studies have confirmed a positive relationship between self-efficacy and ease of use beliefs in technology adoption behaviour. Perceived ease of use is the extent to which a person believes that using a technology will be free of effort. Thus, ease of use has to do with effort expectancy. Likewise, the concept of self-efficacy is similar to a number of other motivational constructs such as effort-performance-expectancy (Porter and Lawler (1968) in Compeau and Higgins, 1995). In the study of Venkatesh and Davis (1996), cited in Venkatesh (2000: 347), the relationship between self-efficacy and ease of use is justified on the basis that in the absence of direct systems experience, the confidence in one's computer-related abilities and knowledge can be expected to serve as a basis for an individual's judgment about how easy or difficult a new system will be to use. The results of the study of Agarwal, Sambamurthy and Stair (2000) show that general computer self-

efficacy and specific computer self-efficacy significantly influence ease of use. Moreover, the study of Agarwal et al. (2000) empirically demonstrated that application-specific self-efficacy has a stronger direct influence on ease of use than general self-efficacy. According to Yi and Hwang (2003: 434) these findings demonstrated that users regard a system easier to use when their conviction in their own self-efficacy regarding the target system is higher, and that application-specific self-efficacy is a more powerful, direct determinant of ease of use than general computer self-efficacy. Therefore the following hypotheses are addressed in this study:

H_{ITU16}: Internet banking self-efficacy perceptions positively influence the perceived ease of use of internet banking

H_{CUI16}: Internet banking self-efficacy perceptions positively influence the perceived ease of use of internet banking

5.3 SUMMARY

In this chapter, a conceptual model was developed to address the research question in Chapter 1 and to realise the primary objective of the study. In total, the model in each cohort consists of 16 hypotheses. These hypotheses draw on theories discussed in Chapter 4, as well as theories presented in this chapter. To summarise, cross-channel evaluative synergies are hypothesised between internet banking convenience and internet banking trust and cellphone banking perceived usefulness. Cross-channel evaluative synergies are also hypothesised for the relationships between internet banking ease of use and internet banking self-efficacy and cellphone banking ease of use. Cross-channel evaluative dissynergies are hypothesised for the influences of internet banking facilitating conditions and internet banking risk on cellphone banking usefulness. To improve the nomological validity of the model, relationships are also hypothesised between IB facilitating conditions and IB perceived convenience, time saving and ease of use, between IB perceived trust and IB perceived risk and perceived convenience, and IB perceived self-efficacy and ease of use.

In the next chapter the research method that will be used to collect the data and to test the conceptual model empirically, will be discussed.

CHAPTER 6

RESEARCH METHOD

6.1 INTRODUCTION

The previous chapter identified and explored different factors related to internet banking that could influence the formation of intention and the continued use intention of cellphone banking. The most important internet banking factors that were considered in Chapter 4 were: convenience, time saving, facilitating conditions, trust, risk, ease of use and self-efficacy. To address the primary objective of the study, an empirical study will be conducted to assess the influence of these internet banking factors on the perceived ease of use and perceived usefulness of cellphone banking in both cohorts (users of only internet banking and users of both internet banking and cellphone banking).

The purpose of this chapter is to provide an overview of the research method to be used in the study. This chapter will therefore firstly explain the research design and then discuss the target population of the study, sampling method and the sample size requirements. Then the data collection method will be justified. The following section will focus on explaining the procedures followed in construct development, scale development and the pilot testing of the survey instrument. The last section of the chapter will focus on discussing the various data analysis techniques used to analyse the data.

6.2 RESEARCH DESIGN

A research design is a framework or plan for a study that is used as a guide to collect and analyse information. Overall, there are three major types of research designs namely, explorative research, descriptive research and causal research (Churchill and Iacobucci, 2005: 74).

An exploratory research design focuses on the discovery of ideas and insights. Exploratory research can be used to formulate problems more precisely, develop hypotheses, clarify concepts, etcetera. (Churchill and Iacobucci, 2005: 76). In addition, Dillon, Madden and Firtle (1993: 32) point out that exploratory research should form the basis of causal and descriptive research designs to be used.

A descriptive research design is typically concerned with determining the frequency with which something occurs or the relationship between variables (Dillon et al., 1993: 32). A descriptive study is typically guided by an initial hypothesis.

Causal research designs, on the other hand, are concerned with determining cause-and-effect relationships, and these are studied via experiments. Causal research is most appropriate when the research objectives include the need to understand which decision variable (e.g. advertising) are the cause of the dependent phenomenon (e.g. sales) defined in the research problem (Shui, Hair, Bush and Ortinau, 2009: 62).

To answer the research question “what is the influence of internet banking cognitive evaluations on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of the intention to use and the continuance of use intention of cellphone banking” a descriptive research design will be the most appropriate research design for the following reasons. Firstly, the research problem is well-defined and hypotheses have been developed; hence, an exploratory research design is not appropriate. Secondly, the hypotheses are formulated to assess the relationships between dependent and independent variables and not causation. Therefore, a casual research design is also not appropriate. Another reason why a descriptive research design is appropriate is that the research question requires the assessment of relationships between variables, which is the use of a descriptive research design according to Dillon et al. (1993).

The appropriate research design for the study can be further identified based on the following criteria (Cooper and Schindler, 2006):

- The study is a communication study and not a monitoring study. In a monitoring study, the researcher inspects the activities of a subject or the nature of some material without attempting to elicit responses from anyone. In a communication study, the researcher questions the subjects and collects their responses by means of internet or telephone conversations, self-administered or self-reported instruments, instruments presented before and/or after a treatment or stimulus condition in an experiment. In this study, respondents' beliefs related to internet and cellphone banking will be collected by means of an online questionnaire. Therefore, the design can be classified as a communication study.

- As the study is not an experiment, the research design can also be classified as *ex post facto*. In an *ex post facto* study, the criterion variable Y (in this study *intention to adopt and continuance of use intention of cellphone banking*) is observed. The researcher then attempts to find one or more causal variables, X's (in this study beliefs regarding internet banking) that offer plausible explanations as to why Y occurs. In contrast to an experiment, this kind of retrospective analysis (the *ex post facto* research design) allows little control of the X's and therefore contains more potential for error (Churchill and Iacobucci, 2005: 129).
- The study is a cross-sectional study as it is carried out only at a specific point in time. Considering the research question it is not necessary to repeat the study over an extended period of time (as in the case of a longitudinal study).
- The topical scope of the study is statistical as hypotheses will be tested by means of structural equations modelling.
- The research environment required to collect the information to assess the hypotheses and address the research question is the actual environment of the respondent. Hence, the research environment can be classified as field conditions.

To summarise, the research design followed in this study can be best described as a descriptive research design, where information is collected by means of a self-administered questionnaire in field conditions at a specific point in time and the topical scope of the study is statistical.

6.3 TARGET POPULATION

To investigate a research question in a study, relevant information must be collected that can be analysed to address the research question. In the process of collecting the data to address the research question, the first important step is to define the population for the study. The population of a study can be defined as the “identifiable set of elements of interest to the researcher” (Shui et al., 2009). ‘Elements’ are usually a person, an organisation or an object from which information is sought. In this study the population of interest is bank customers with access to the Internet. For practical considerations it was not possible to do a census of the defined population. A census is the collection of primary data from every member of a defined population. Therefore, a sample must be drawn from the population. According to Shui et al. (2009: 450) the purpose of sampling is to select a

relatively small number of elements from a larger defined group of elements and expecting that the information collected from the small group will enable accurate judgements about the larger group (Shui et al., 2009: 448). Shui et al. (2009: 450) further advise that if a study involves sampling, the target population must be defined, rather than the population. The target population is the defined set of elements identified for investigation based on the evaluation of the research objectives, feasibility and cost-effectiveness. Considering these three criteria, the target population consists for this study are defined as bank clients 18 years of age and older who either (a) are using only internet banking or (b) using both internet banking and cellphone banking.

6.4 SAMPLING FRAME

Sampling theory proposes that the next step in the sampling process is to obtain a sampling frame. A sampling frame is a list of eligible elements in the target population (also referred to as sampling units). Given bank clients' privacy rights, a sampling frame could not be obtained for any of the two cohorts in this study. In the absence of a sampling frame invitations to participate in the survey were posted on major South African online shopping sites (BidorBuy.co.za and Travelstart.co.za), on the Facebook page of UFS alumni and in the e-mail newsletters to the alumni, the website of OFM (the major radio station in central South Africa) and distributed in a services company (due to legal restrictions, the business may not be identified). Considering the reach of these data collection points, it was argued that it will provide acceptable coverage of the two target populations. Lastly, to confirm that each respondent has only completed the survey once, the completed questionnaires can be compared on name, surname, contact number, e-mail address and internet protocol address.

6.5 SAMPLING METHOD

In the process of developing a sampling plan, a decision must be made whether to use probability sampling or non-probability sampling. Probability sampling requires that (a) every element has a nonzero probability of being selected, and (b) the probability of selections is known for each selected element (Mallet, 2006: 161). The probability of selection in a sample can be expressed by the following formula (Shui et al., 2009: 471):

$$\text{Probability of selection} = \frac{\text{Size of sample}}{\text{Size of population}}$$

Given that the size of each target population is unknown, the second requirement for probability sampling (that is the probability of selection is known) cannot be calculated. Thus, probability sampling cannot be used in this study. Nonetheless, given the fact that a sampling frame was not available, only a non-probability sample of the target populations could be drawn.

The alternative sampling method to use in this study is non-probability sampling. Non-probability sampling is the selection of elements from a target population based on convenience – because the elements are easy or inexpensive to reach (McDaniel and Gates, 2008: 334). There are four main types of non-probability sampling:

- Convenience sampling. It is a sampling method in which respondent participation is voluntary or which leaves the selection of sampling units primarily to the interviewer. Convenience samples also involve selecting sampling units on the basis of where and when the study is being conducted (Dillon et al., 1993: 229).
- Judgment sampling. This sampling method involves selecting certain respondents for participation in the study, presumably because they are representative of the population of interest and/or meet the specific needs of the study (Dillon et al., 1993: 229).
- Quota sampling. This sampling method involves selecting specific numbers of respondents who have certain required characteristics, such as gender or specific product use (Dillon et al., 1993: 230). Quota samples are designed to ensure that the proportion of the sample elements with a certain characteristic is approximately the same as the proportion with the characteristic in the population of interest.
- Snowball sampling: This sampling method involves first locating respondents who have the necessary qualifications to be included in the sample and then using these respondents as informants to identify others with the desired qualifications to belong to the target population. Snowball sampling is useful when the target population is small and specialised (Dillon et al., 1993: 230).

In this study non-probability, convenience sampling was used. The primary reason for the use of convenience sampling was to attract a sufficient number of bank clients who use only internet banking and bank clients who uses both internet and cellphone banking for the assessment of the hypotheses. Judgement sampling was not appropriate as the definition of the target population provides a comprehensive description of the required

characteristics for sampling units to be included in the study. Quota sampling may have been appropriate, but the intention was to collect data from as many respondents as possible from both cohorts. Lastly, internet banking in South Africa has been adopted by more than 3 million users (Coetzer, 2010), whilst the Internet penetration rate is approximately 5.3 million users in South Africa (Internet World Stats, 2012). Thus, internet banking users is not a small, specialised target population on the Internet. Therefore, snowball sampling was not an appropriate sampling technique for this study.

6.6 SAMPLING SIZE

According to Hair et al. (2006: 740-742) a number of issues must be considered in estimating the sample size required for structural equations modelling (SEM). Firstly, the multivariate normality of the data should be taken into account. If the data deviate severely from the assumption of multivariate normality, the ratio of respondents to parameters needs to be higher. The suggested ratio to minimise problems with deviations from normality is 15 respondents for each parameter estimated in the model. Based on the conceptual model presented in Figure 5.1 and the number of items to measure each latent variable (see Table 6.1), 159 parameters must be estimated in each cohort structural equations model. The 159 parameters include 105 weights, 3 covariances and 51 variances. Thus, to minimise potential problems with deviations from normality, the structural model of a cohort in this study should be estimated using a sample of 2385 sampling units. Secondly, the estimation method also plays a role in the sample size decision.

The use of the maximum likelihood estimation method requires a sample size of between 150 and 400 respondents. Furthermore, model complexity, missing data and average error variance of indicators are other issues that must also be considered. Of these three issues, missing data was not a problem, as the online survey system prompted respondents to answer unanswered questions before the submission of the questionnaire will be accepted. In addition, adopting a pessimistic view that low communalities can be present and some of the constructs may have fewer than three measured items as indicators, the sample size should be more than 500 respondents per cohort (Hair et al., 2006).

For practical, time and financial reasons it might not have been feasible to obtain responses from 2385 users of only internet banking and 2385 users of internet and cellphone banking. Therefore, the threshold for an 'ideal' sample size per group was set at 795 respondents. This threshold is derived based on a rule-of-thumb of at least five

respondents for every parameter estimated. This threshold is still in line with the sample size requirement of at least 500 respondents set by Hair et al. (2006) in the pessimistic view described above.

6.7 DATA COLLECTION

In the absence of a sampling frame and the sampling criterion that all respondents must be users of internet banking; the most appropriate method to collect data was an online questionnaire. The advantages of internet surveys are amongst others low cost, fast turnaround speed, high geographical reach and fast distribution (Forrest, 1999: 136).

Another important advantage of internet surveys is that it provides the option of dynamic adaptation of the questionnaire layout based on previous responses. In this study there are two main groups of respondents namely, users of only internet banking and the users of both internet and cellphone banking. Thus, only the respondents who used cellphone banking had experience of cellphone banking. Therefore, it was necessary to formulate appropriate statements for users and non-users of cellphone banking. For example, the following statement is appropriately formulated for a user of cellphone banking 'Cellphone banking is easy to use'. However, the statement is not appropriate for non-users of cellphone banking because they do not have experience with cellphone banking. Therefore the statement must be adapted to '*Cellphone banking would be easy to use*'.

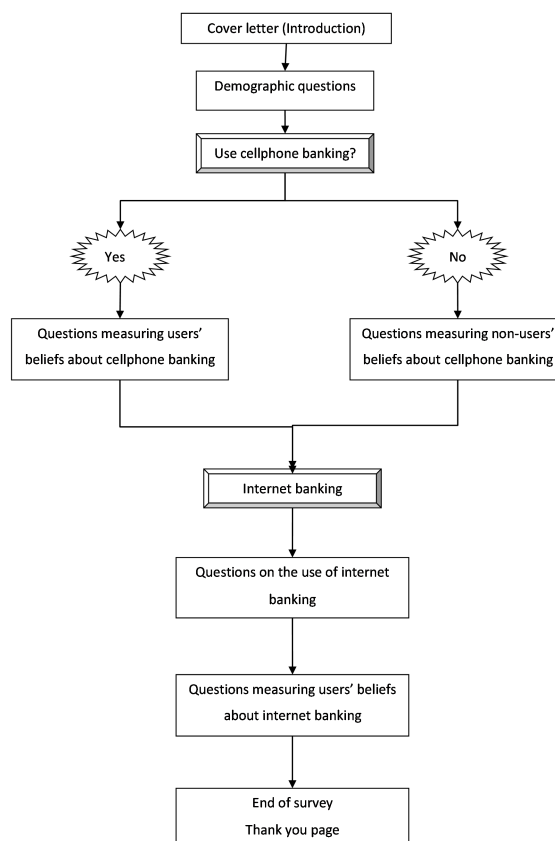
In Figure 6.1 it is illustrated how the dynamic adaptation capability of online surveys facilitates the flow of the questionnaire to route respondents to appropriate sections in the questionnaire. The question on which adaptation was based is 'Do you use cellphone banking?' Respondents answering *No* to this question were automatically routed to questions phrased to measure their beliefs about cellphone banking, whilst respondents answering *Yes* to this question were routed to questions about their beliefs of cellphone banking. Once these questions were answered, all of the respondents answered the same questions regarding the use of internet banking and their beliefs about internet banking. This dynamic adaptation is much more convenient than a traditional paper-based survey as the respondent do not have to page to relevant questions or follow instructions regarding which questions to answer and which not.

6.8 MEASUREMENT

Measurement is the process of determining the amount (or intensity) of information about constructs, concepts or objects of interest and their relationship to a management dilemma (Shui et al., 2009: 378). The amount (or intensity) of information can be determined by developing procedures (rules) for assigning numbers to objects to represent quantities or attributes (Dillon et al., 1993: 272). To facilitate the collection of high quality data, it is important to appreciate what must be measured before developing the appropriate scale measurement. Therefore, the measurement process consists of two distinctly different development processes: *construct development* and *scale development* (Shui et al., 2009: 379). These two activities embody 'construct operationalisation', which entails selecting the measurement scale items and the scale type (Hair et al., 2006: 735).

FIGURE 6.1

SCHEMATIC PRESENTATION OF THE LAYOUT OF THE ONLINE QUESTIONNAIRE



6.8.1 Construct development

A construct is a hypothetical variable made up of a set of component responses or behaviours that are thought to be related. Construct development is an integrative process in which researchers identify the subjective properties for which data should be collected

to address the research problem. In other words, the goal of construct development is to precisely identify and define what is to be measured. Identifying the properties to investigate requires knowledge and understanding of constructs and their dimensionality, validity and operationalisation (Shui et al., 2009: 379-380).

According to the seminal work of Churchill (1979) the first step in construct development is to specify the domain of the construct. This specification entails formulating a definition of the construct that delineates what is included in the definition and what is excluded. This conceptual definition specifies the theoretical basis for the summated scale by defining the concept being represented in terms applicable to the research context (Hair et al., 2006: 136). The next step is to generate items which capture the domain as specified. Definitions of constructs and identifying items to measure each construct can be based on definitions used in previous studies and scales used in those studies (Hair et al., 2006: 735).

In this study, the approach followed in construct development was to use definitions of the constructs as utilised in previous studies to formulate appropriate definitions for the constructs, select items from previous studies to measure the constructs, as well as to consider the theory underpinning each construct as a source of potential items. The items selected from previous studies were adapted to the context of the study to ensure relevance. The conceptual definitions of the constructs and the final number of items used to measure each construct in the study are presented in Table 6.1.

TABLE 6.1
CONSTRUCT DEFINITIONS AND THE NUMBER OF ITEMS USED TO MEASURE
EACH CONSTRUCT

| Construct | Definition | Number of measurement items |
|------------------------------|--|------------------------------------|
| Perceived convenience of IB* | A client's belief that internet banking enables him/her to do banking transactions and activities at a time and place that is more convenient to them, as well as that internet banking is convenient for banking transactions and activities. | 6 |

| | | |
|---------------------------------|---|---|
| Perceived time saving of IB | A client's belief that using internet banking reduces the time spent doing banking transactions | 5 |
| IB facilitating conditions | An internet banking user's belief that he/she has the necessary technology and resources to use internet banking. | 3 |
| Perceived trust in IB | The belief that internet banking will deliver the promised internet banking service and execute the service with benevolence and integrity. | 4 |
| Perceived risk of IB | The possibility of some kind of loss or undesired outcome due to the use of internet banking. | 4 |
| Perceived ease of use of IB | The degree to which a client believes that using internet banking will be free of effort. | 4 |
| Perceived IB self-efficacy | An individual's perception of his/her efficacy in using internet banking to do banking activities. | 3 |
| Perceived usefulness of CB** | The degree to which a client believes that using cellphone banking would enhance his or her performance of banking activities. | 4 |
| Perceived ease of use of CB | The degree to which a client believes that using cellphone banking will be free of effort. | 4 |
| Intention to use CB | A client's intention to use cellphone banking. | 4 |
| CB continuance of use intention | A client's intention to continue to use cellphone banking. | 4 |

* Internet banking

** Cellphone banking

6.8.2 Scale development

The selection and construction of a measurement scale requires the consideration of several factors that influence the reliability, validity, and practicality of the scale. These factors are, according to Cooper and Schindler (2006: 332-336):

- Research objectives. The primary objective of the study is “to assess the influence of internet banking cognitive evaluations on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of intention to use and the continuance of use intention of cellphone banking.” Considering this objective, the selection of scales used in this study were based on two criteria. Firstly, to identify respondents as users of only internet banking and users of both internet and cellphone banking. Therefore, scaling must measure the characteristic of the respondents with regard to whether they use internet banking or internet and cellphone banking. Secondly, scaling was used to measure respondents’ beliefs about the constructs in the conceptual model.
- Response and data types. To ascertain whether respondents were using internet or internet and cellphone banking a Yes or No response must be recorded. According to Cooper and Schindler (2006: 333) a categorisation scale is appropriate as such a scale allows respondents to put themselves in a specific category. To be more specific a dichotomous, nominal scale that offer the two mutually exclusive response choices, Yes or No, was appropriate. The measurement scale must also record the extent to which respondents agreed or disagreed with statements on internet and cellphone banking. Therefore, a rating scale was required. In previous technology acceptance studies such as Gu et al. (2009) and Luarn and Lin (2005) a Likert-type scale was used to measure respondents beliefs about the technology of interest.
- Number of scale points. In this study, a seven-point Likert scale was used to measure respondents’ beliefs about internet and cellphone banking. An example of the scale is shown in Figure 6.2. The primary scale point descriptors range for *Strongly disagree* to *Strongly agree*, whilst the secondary scale point descriptors are whole integer numbers ranging from 1 for *Strongly disagree* to 7 for *Strongly agree*. The Likert scale is a balanced scale, i.e. an equal number of categories above and below the midpoint.

TABLE 6.2
EXAMPLE OF LIKERT SCALE

| | Strongly disagree | Moderately agree | Slightly disagree | Undecided | Slightly agree | Moderately agree | Strongly agree |
|-----------|----------------------|---------------------|----------------------|-----------|-------------------|---------------------|-------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Statement | | | | | | | |

6.9 PILOT TESTING

The purpose of the pilot testing phase was to do an assessment of the measurement properties of scales before the main study was launched. The pilot testing phase consisted of two stages.

During stage one the face validity of the items measuring the constructs was assessed. Face validity is the subjective assessment of the correspondence between the individual items and the concept. The face validity of the scales was assessed by a panel of two academics in the electronic commerce field of the study (one international and one national) and three bank clients. Based on the feedback from the panel, the wordings of some of the items were changed.

The second stage of the pilot testing phase was the assessment of construct reliability by means of coefficient alpha and the unidimensionality of scales by means of an exploratory factor analysis (EFA). According to Churchill (1979) coefficient alpha should be the first measure to be calculated in the assessment of the quality of an instrument. A high coefficient alpha indicate that the sample of items performs well in capturing the construct which motivated the measure. The purpose of the factor analysis was to determine whether the items in each construct loads only on one dimension. After examining the results of the assessment of the reliability and the unidimensionality of the scales, modifications to the scales were made where necessary.

The measurement scales were pilot-tested with 96 respondents of which 35 respondents were users of internet and cellphone banking and 61 respondents were users of only internet banking. The results of the pilot testing showed that most of the scales demonstrated acceptable reliability, except 'internet banking facilitating conditions'. The

fourth internet banking facilitating conditions statement showed poor reliability in both cohorts. Thus the statement “*If I have difficulty using internet banking, there will be professionals to help me*” was removed from the survey instrument. Not all the measurement scales showed signs of being unidimensional. The trust scale showed signs of being two-dimensional. The first two trust statements (*Internet banking is unreliable* and *Internet banking cannot be trusted, there are too many uncertainties*) loaded on one dimension, while the other four items loaded on a separate dimension. This was the case for both users of only internet banking and the concurrent users. Thus, these first two statements were removed from the questionnaire.

The final scales used to measure each construct in the study are shown in Tables 6.3 to 6.12. In these tables previous studies are cited in which the items were used. From these studies the items were adapted to the context of the study. Statements in *italics* represent statements formulated for non-users of cellphone banking (see Table 6.10, Table 6.11 and Table 6.12).

TABLE 6.3
PERCEIVED CONVENIENCE OF INTERNET BANKING

| Suggested items | Torkzadeh and Van Dyke (2002) | Liao and Cheung (2002) | Theory |
|---|--------------------------------------|-------------------------------|---------------|
| Internet banking is convenient, because I can do banking activities from a place (like home or office) convenient for me. | | x | x |
| Internet banking is convenient, because I can do banking activities any day of the week. | | x | x |
| Internet banking is convenient, because I can do banking activities any time of the day. | | x | x |
| Internet banking is convenient, because it minimises the effort in doing banking transactions. | x | | |
| Internet banking minimises the hassle of doing banking transactions. | x | | |

| | | | |
|---|--|--|---|
| Overall, internet banking is a more convenient mode of doing banking activities than other available banking self-services. | | | x |
|---|--|--|---|

TABLE 6.4
PERCEIVED TIME SAVING OF INTERNET BANKING

| Suggested items | Torkzadeh and Van Dyke (2002) | Proposed |
|---|--------------------------------------|-----------------|
| Internet banking minimises the time I spend doing banking transactions. | x | |
| Internet banking minimises my queuing time in the bank or to pay accounts at retailers. | x | |
| Internet banking saves me time since I do not always have to go to the bank to do banking transactions. | | x |
| Internet banking minimises the time pressure when doing banking transactions. | x | |
| Overall, internet banking saves me time. | x | |

TABLE 6.5
INTERNET BANKING FACILITATING CONDITIONS

| Suggested items | Venkatesh, Morris, Davis and Davis (2003) | Shih and Fang (2004) |
|---|--|-----------------------------|
| Throughout every day of the week I have access to a computer that I can use for internet banking. | | x |

| | | |
|---|---|--|
| I have the time to use internet banking. | x | |
| I have the money to use internet banking. | x | |

TABLE 6.6
PERCEIVED TRUST IN INTERNET BANKING

| Suggested items | Gu et al. (2009) | Lee and Chung (2009) |
|--|-----------------------------|-------------------------------------|
| Internet banking is trustworthy. | x | x |
| Internet banking keeps its promises and commitments | x | x |
| Internet banking serves the present and future interests of users. | | x |
| Overall, I trust internet banking | | x |

TABLE 6.7
PERCEIVED RISK OF INTERNET BANKING

| Suggested items | Kim, Prabhakar and Park (2009b) | Featherman and Pavlou (2003) |
|--|--|---|
| Considering the possibility of monetary loss associated with internet banking, how risky do you consider internet banking to be? | x | |
| Considering the possibility of harm to you resulting from the misuse of important personal and financial information due to the use of internet banking, how risky do you consider internet banking to be? | x | |

| | | |
|--|---|---|
| Considering the possible loss of privacy because of information collected about you as you use internet banking, how risky do you consider internet banking to be? | x | |
| How risky do you rate internet banking? | | x |

TABLE 6.8
PERCEIVED EASE OF USE OF INTERNET BANKING

| Suggested items | Lee (2009) | Davis (1989) |
|---|-------------------|---------------------|
| Learning to use internet banking is easy. | x | x |
| Using internet banking does not require a lot of mental effort. | x | x |
| It is easy to use internet banking to do banking transactions. | x | x |
| It is easy to become skilful at using internet banking. | | x |

TABLE 6.9
PERCEIVED INTERNET BANKING SELF-EFFICACY

| Suggested items | Tan and Teo (2000) | Wang and Wang (2008) |
|---|---------------------------|-----------------------------|
| I am confident of using internet banking even if I have only the online instructions for reference. | x | x |
| I am confident of using internet banking even if there is no one around to show me how to do it. | x | x |
| I am confident of using internet banking even if I have just the online "help" function for assistance. | x | x |
| I am confident in using internet banking if I have sufficient time to complete the transactions. | | x |

TABLE 6.10
PERCEIVED USEFULNESS OF CELLPHONE BANKING

| Suggested items | Lee (2009) | Gu et al. (2009) |
|--|-------------------|-------------------------|
| Using cellphone banking enables me to do my banking transactions quicker. <i>Using cellphone banking would enable me to do my banking transactions quicker.</i> | x | x |
| Using cellphone banking makes it easier to do my banking transactions. <i>Using cellphone banking would make it easier to do my banking transactions.</i> | x | x |
| Cellphone banking is useful. <i>Cellphone banking would be useful.</i> | x | |
| Using cellphone banking enhances the efficiency of my banking activities. <i>Using cellphone banking would enhance the efficiency of my banking activities.</i> | | x |

TABLE 6.11
PERCEIVED EASE OF USE OF CELLPHONE BANKING

| Suggested items | Gu et al. (2009) | Luarn and Lin (2005) | Venkatesh and Davis (1996) |
|---|-------------------------|-----------------------------|-----------------------------------|
| Cellphone banking is easy to use. <i>Cellphone banking would be easy to use.</i> | x | x | |
| Learning to use cellphone banking is easy. <i>Learning to use cellphone banking would be easy.</i> | x | x | |
| It is easy to become skilful in using cellphone banking. <i>It would be easy to become skilful in using cellphone banking.</i> | | x | |

| | | | |
|---|--|--|---|
| I find it easy to do what I want to do using cellphone banking. <i>I would find it easy to do what I want to do using cellphone banking.</i> | | | x |
|---|--|--|---|

TABLE 6.12
INTENTION TO USE AND CONTINUANCE USE INTENTION OF CELLPHONE BANKING

| Suggested items | Gu et al. (2009) | Lee (2009) | Luarn and Lin (2005) |
|---|-----------------------------|-----------------------|-------------------------------------|
| I intent to use cellphone banking regularly in the future. <i>I intend to use cellphone banking regularly in the future.</i> | x | | |
| I intent to use cellphone banking more regularly in the future <i>Assuming that I have access to cellphone banking services, I intend to use it.</i> | | | x |
| I will frequently use cellphone banking in the future. <i>I will frequently use cellphone banking in the future.</i> | x | | |
| I will continue to use cellphone banking for my banking needs. <i>I will use cellphone banking for my banking needs.</i> | | x | |

6.10 DATA ANALYSIS

In this study, frequency tables and cross tabulations, independent sample *t*-tests and one-way ANOVAs as well as co-variance based structural equation modelling (SEM) were used to analyse the data. This purpose of this section is to give an overview of these data analysis techniques.

6.10.1 Frequency tables and cross tabulations

The main purpose of frequency tables and cross-tabulations is to provide information of the characteristics of the sample. Tabulation consists of counting the number of cases that fall into various categories (Churchill and Iacobucci, 2005: 410). Simple tabulation involves counting a single variable, whilst cross-tabulation entails counting the number of cases that have the joint characteristics of two or more variables. Information that can be presented in frequency tables include, among others, age of respondents, gender, bank affiliation, number of respondents using cellphone banking, rate of use of internet banking and province of residence. Cross-tabulations could include, among others, cross-tabulations between gender and age, age and bank, gender and bank.

6.10.2 Independent samples *t*-test

An independent samples *t*-test compares the mean scores of two groups on a given variable. In this study, for example, an independent samples *t*-test can be used to compare the use of internet banking for paying accounts between the two cohorts.

The independent sample *t*-test is a parametric test based on normal distribution. Therefore, the test assumes (Field, 2009: 326):

1. The sampling distribution is normally distributed.
2. Data are measured at least at the interval level.
3. Homogeneity of variances in the populations.
4. Scores are independent.

The Levene's test is used in the independent samples *t*-test to test for significant differences between the groups. If the Levene's test is significant ($p \leq 0.05$), it is evidence that the hypothesis that the variances are significantly different and that the assumption of the homogeneity of variances, have been violated (Field, 2009: 340). Thus, equal variances are not assumed and the corresponding *t*-test result must be interpreted. If the Levene's test is not significant ($p > 0.05$), it is evidence that the hypothesis that the variances are not significantly different and that the assumption of the homogeneity of variances, are tenable (Field, 2009: 340). Thus, equal variances are assumed and the corresponding *t*-test result must be interpreted.

6.10.3 One-way ANOVA

A one-way Analysis of Variance (ANOVA) is a statistical method to test the equality of three or more means simultaneously by using variances. The test assumes (Hair et al., 2006: 408-409):

1. The populations from which the samples were obtained must be normally or approximately normally distributed.
2. The samples must be independent.
3. The variances of the populations must be equal

The Levene's test can be used to assess the homogeneity of variances across the groups. If the Levene's test is not significant ($p > 0.05$), the assumption is violated that the variances of the populations are equal. In such situations, the Welch's F and Brown-Forsythe F must be used to assess when the means of the groups differ significantly (Field, 2009: 382). If the one-way ANOVA test shows that groups differ significantly, the Tukey post-hoc test can be used to identify which groups' means are homogeneous.

6.10.4 Confirmatory factor analysis

To assess the psychometric properties of the measurement model, a confirmatory factor analysis (CFA) will be conducted using the computer programme AMOS 20.0. A confirmatory factor analysis is a multivariate technique to provide a confirmatory test of the measurement theory (Hair et al., 2006: 774). A measurement theory specifies how measurement variables represent constructs involved in a theoretical model logically and systematically. In other words, measurement theory specifies a series of relationships that suggest how measured variables represent a latent construct that is not measured directly (Hair et al., 2006: 774). The major difference between an exploratory factor analysis (EFA) and a CFA is that in an EFA the factors are derived from statistical results and not from theory. Therefore, the factors can only be named after the factor analysis was performed. Furthermore, an EFA can be conducted without knowing how many factors exist in the data or which variables belong with which constructs.

Before considering the validity of the measurement model at the hand of model fit indices, construct validity of the measurement theory must be re-examined. Construct validity can be examined by assessing convergent validity and discriminant validity (Hair et al., 2006).

6.10.5 Assessment of convergent validity

Convergent validity can be assessed by considering factor loadings, variances extracted and construct reliability. To meet the criteria of convergent validity the factor loadings in the measurement model should be significant and .50 or higher, and ideally .70 or higher (Hair et al., 2006). The rationale for the .70 or higher is that a loading of .71 squared equals .50 which means that the factor explains at least half of the variation in the item. The average variance extracted (AVE) percentage should be .5 or higher and is calculated as follows:

$$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$$

Where:

λ = standardised factor loading

n = the number of items

The construct reliability (CR) value of each latent variable should be .70 or higher to indicate adequate convergence or internal consistency (Hair et al., 2006: 779). The construct reliability value in a measurement model is calculated as follows:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)}$$

Where:

λ = standardised factor loading

n = the number of items

δ = error variance for an item

6.10.6 Assessment of discriminant validity

Discriminant validity is the extent that latent variable A discriminates from other latent variables (e.g., B, C, D) (Farrel and Rudd, 2009) in the same measurement model. Discriminant validity can be assessed at the hand of a number of approaches. The two main approaches used to assess discriminant validity in measurement models are the average extracted variance versus the shared variance test of Fornell and Larcker (1981) and the paired construct test.

The method of assessment of discriminant validity proposed by Fornell and Larcker (1981) entails comparing the average variance extracted for each construct with the shared variance between constructs. The shared variance between two constructs is the squared correlation between the two constructs. For evidence of discriminant validity, the average variance extracted for both constructs must be higher than the shared variance between the two constructs.

The paired construct test consists of two tests. The first test was first proposed by Bagozzi and Phillips (1982). This test entails a Chi-square difference test between an unconstrained CFA model of two constructs and a nested CFA model where the correlation between the two constructs is constrained to unity. If the Chi-square difference value is greater than 3.84 the null hypothesis (that the correlation between the pair of constructs equal unity) is rejected at the 5% significant level. The second paired test was proposed by Bagozzi, Yi and Phillips (1991). This procedure examines the confidence interval for the estimated correlation between two constructs. Two constructs are distinct when the 95% confidence interval for the correlation between two constructs does not contain unity (1.0).

In this study discriminant validity was assessed by using firstly the method in Fornell and Larcker (1981). In the cases where the squared correlations were larger than the average variance extracted for one or both of the associated constructs, the paired construct test was used to assess discriminant validity. Based on the weights of evidence conclusions were made of the presence of discriminant validity between the constructs in question.

6.10.7 Model fit indices

In evaluating model fit, two categories of indices can be used; namely, goodness-of-fit and incremental fit indices. The fit indices in each category that were used in this study as well as the recommended cut-off values are listed in Table 6.13. The cut-off values were sourced from Hair et al. (2006).

In this study the Goodness-of-Fit Index (GFI) was not used following the recommendation of Sharma, Mukherjee, Kumar and Dillon (2005). Sharma et al. (2005) concluded after a simulation study that the index is not very sensitive to detecting miss-specified models and that the mean value is substantially affected by sample size and the number of indicators.

TABLE 6.13
FIT INDICES

| Category of fit indices | Type of fit indices | Recommended cut-off value |
|-------------------------|--|---------------------------------------|
| Goodness-of-fit | Chi-square (χ^2) | Significant p-value can be expected |
| | Chi-square (χ^2)/degrees of freedom (<i>df</i>) | Below 3 |
| | Root mean square error of approximation (RMSEA) | Below .07 with a CFI of .90 or higher |
| Incremental fit indices | Comparative Fit Index | Above .90 |
| | Tucker Lewis Index | Above .90 |

6.10.8 Assessment of the structural model

A structural model represents the structural theory that is a conceptual representation of the relationships between constructs. According to Hair et al. (2006), the assessment of a structural model entails four steps. These steps are:

1. Specifying the structural model.
2. Estimating the structural model.
3. Examining results from the assessment of the structural model.
4. Modifying the structural model based on the results of the initial estimation of the structural model.

The examination of the results in step three entails a number of activities. Firstly, the model fit is assessed based on the fit indices and cut-off values in Table 6.13. In addition to the fit indices, other model diagnostics such as standardised residuals and modification indices between exogenous and endogenous variables, endogenous variables and other endogenous variables, and error covariances among endogenous constructs should also be examined to improve the fit of the structural model. Once acceptable model fit is achieved and theory-supported modification(s) is (are) made, the results of the structural weights can be interpreted. Given that the hypotheses in this study refer to directional relationships – in other words, the influence of an independent variable on a dependent

variable is stated as positive or negative, the critical ratios of the structural weights were interpreted at $\alpha=0.05$ (one-tailed).

6.10.9 The assessment of invariance of the structural model weights

If configural invariance and measurement invariance (also known as metric invariance) can be established across the structural models of the two cohorts, the structural weights representing evaluative synergies and dissynergies can be compared across the two cohorts for non-invariance. Configural invariance is present when the structural models have the same structure (same pattern of free and fixed parameters). Measurement invariance is a measurement theory condition in which all the measures forming a measurement model have the same meaning and are interpreted in the same way by the different groups of respondents (Hair et al., 2006: 772). To assess measurement invariance in the structural models across the groups, an acceptable fitting structural model for each group must be estimated. Hence, the first step is to identify a structural model that fits each group acceptably. Once such a structural model is identified, the next step is to assess measurement invariance across the groups in the structural model.

Measurement invariance can be assessed by constraining the measurement weights (factor loadings) across the cohorts to equality (Deng, Doll, Hendrickson and Scazzero, 2005: 754). A Chi-square difference test between the unconstrained structural model and the structural model with constrained measurement weights can be used to assess measurement invariance. Measurement invariance is present if the Chi-square difference value is not significant at the 95% significant level (Alsajjan and Dennis, 2010). If full measurement invariance cannot be established, partial measurement invariance is acceptable. Partial measurement invariance can be established by releasing constraints across the two models until a non-significant Chi-square difference is achieved. However, the threshold for partial measurement invariance is that at least on item per construct, in addition to the item fixed to unity for scale detection, is metrically invariant.

To assess which structural weights are non-invariant across the cohorts, the procedure in Wang, Beatty and Mothersbaugh (2009) was followed. In Wang et al. (2009) each structural weight of interest in turn was constrained to equality across the groups along with the measurement weights. This constrained structural model was then compared to the constrained measurements weight model based on the difference in the Chi-square statistic. A significant Chi-square difference would indicate that the structural weights of interest were non-invariant across the groups.

6.11 SUMMARY

This importance of this chapter is that it presents a detailed discussion on the research method that will be used to collect data, as well as the data analysis techniques that will be used to realise the primary objective of the study. The research design for this study was identified as a descriptive research design, where information is collected by means of a self-administered questionnaire in field conditions at a specific point in time and the topical scope of the study is statistical. The target population defined as internet banking only users and users of both internet and cellphone banking (concurrent users). To collect the data a non-probability, convenience sampling method was selected as the most appropriate sampling method to use and an online questionnaire was selected as the method to collect the data. Considering that SEM will be the statistical analysis method to be used in the study, 500 respondents in each cohort were set as an acceptable sample size. In addition to other research design topics, the scales that will be used to measure constructs were also presented. The chapter concluded with an overview of the data analysis techniques that will be used in Chapter 7 to analyse the data and to test the hypotheses.

CHAPTER 7

EMPIRICAL RESULTS

7.1 INTRODUCTION

The primary objective of this study is to assess the influence of internet banking cognitive evaluations on the perceived usefulness and the perceived ease of use of cellphone banking in the formation of intention to use and the continuance of use intention of cellphone banking. To realise this objective, data were collected from users of both internet and cellphone banking, and users of only internet banking utilising the methodology described in Chapter 6. In this chapter, the data collected during the empirical study are analysed and the results are reported. To provide a comprehensive overview of the data collected and the subsequent analyses thereof, the results will be analysed and discussed in the following order. For both of the two data sets (users of only internet banking and users of both internet and cellphone banking), the data will be first analysed at the most basic level (the frequency level) by means of frequency tables and then by selected cross-tabulations. Once this is completed, one-way ANOVA tests and *t*-tests will be performed to augment the results of the frequency tables and cross-tabulations.

The most important part of the data analysis is the testing of the conceptual model with the data of the users of only internet banking and the data of the concurrent users. This process will start with an assessment of the measurement models of both cohorts. Once the adequacy of the measurement models have been confirmed, the structural models will be assessed. The results of the assessment of each structural model will be presented in a figure, followed by a summary of the hypotheses testing results in a table format to provide an easy to read overview of the results. Lastly, the structural weights representing the cross-channel cognitive evaluations will be statistically compared across the cohorts.

7.2 DESCRIPTIVE STATISTICS

In section 7.2.1 and section 7.2.2 the data of each cohort will be analysed by using frequency tables, cross-tabulations, *t*-tests and one-way ANOVA tests. Frequency tables will be used to develop descriptive statistics to describe the two samples on key variables such as gender, age and bank affiliation. Cross-tabulations will be done to develop

additional descriptive statistics for each cohort by tabulating two key variables at a time. Lastly, *t*-tests and one-way ANOVAs will be used to investigate whether respondents differ on key variables within cohorts. Thus, the within cohort *t*-tests and one-way ANOVAs will provide additional results to complement the descriptive statistics developed by using frequency tables and cross-tabulations. *T*-tests will also be used to compare the two cohorts in terms of activities such as the use of internet banking to pay accounts or to do cash transfers. The advantage of using *t*-tests is that it can be determined whether the groups statistically differ on key variables. Thus, the purpose of the between-groups *t*-tests is to provide additional insights related to the two cohorts in addition to those reported in section 7.2.1 and section 7.2.2.

7.2.1 Users of only internet banking

7.2.1.1 Frequency tables

7.2.1.1.1 Gender

The majority of the respondents were females. In total, females represented 61.1% (414 respondents) of the respondents belonging to this cohort (see Table 7.1). Two hundred and sixty four (264) male users of only internet banking participated in the study.

TABLE 7.1
GENDER OF THE USERS OF ONLY INTERNET BANKING

| Gender | n | % |
|---------|-----|------|
| Males | 264 | 38.9 |
| Females | 414 | 61.1 |
| Total | 678 | 100 |

7.2.1.1.2 Age

The users of only internet banking were respondents as young as 18 years of age and the oldest user of internet banking in this cohort was 82 years old. The age category with the least number of respondents in Table 7.2 is the age category 18-20 (7 respondents). Table 7.2 shows that the age category with the most respondents was the 21-30 age category (232 respondents). The age category with the second most respondents was the 31-40 age category with 226 respondents. The users of only internet banking sample also included older respondents, thus making it more representative of the general population.

Ninety-four (94) respondents, in other words 13.9% of the sample of the users of only internet banking, were 51 years of age and older.

It is also important to point out that the frequencies of the age categories in Table 7.2 follow the same distribution as the reported age of South African internet users in the South African Media and Entertainment Outlook: 2010 – 2014 (PricewaterhouseCoopers, 2010). Thus, it can be concluded that the sample of users of only internet banking is representative of the general internet population of South Africa in terms of age.

TABLE 7.2
AGE OF THE USERS OF ONLY INTERNET BANKING

| Age categories | n | % |
|-----------------------|----------|----------|
| 18-20 | 7 | 1.0 |
| 21-30 | 232 | 34.2 |
| 31-40 | 226 | 33.3 |
| 41-50 | 119 | 17.6 |
| 51 and older | 94 | 13.9 |
| Total | 678 | 100 |

7.2.1.1.3 Bank affiliation

The respondents in this cohort were customers of 11 financial institutions (see Table 7.3). Two hundred and sixty six (266) of the users of only internet banking, representing 39.2% of the respondents in this cohort, were customers of ABSA. Thirty-four point five percent (34.5%) of the respondents (234) were customers of Standard Bank. Furthermore, in this cohort, 199 respondents were customers of First National Bank and 102 were customers of Nedbank. Thirty-six (36) of the respondents were Capitec customers, the relatively new South African bank. Of the other six banks, nine respondents were customers of Investec, two respondents were customers of Virgin Money, whilst Bidvest, Rand Merchant Bank, Sanlam Liquid and the South African Post Office were each represented by only one respondent in this cohort.

The majority of the respondents in this cohort bank with the 'Big Four' South African banks. Although slightly more clients of Standard Bank than First National Bank make up this cohort, it can still be argued that the sample of users of only internet banking is

representative of the South African internet banking market, considering the adoption statistics reported in Chapter 3.

TABLE 7.3
BANK AFFILIATION OF THE USERS OF ONLY INTERNET BANKING

| Financial institution | n | % |
|------------------------------|----------|----------|
| ABSA | 266 | 39.2 |
| Capitec | 36 | 5.3 |
| First National Bank | 199 | 29.4 |
| Nedbank | 102 | 15.0 |
| Standard Bank | 234 | 34.5 |
| Bidvest | 1 | 0.1 |
| Investec | 9 | 0.1 |
| Rand Merchant Bank | 1 | 1.3 |
| Sanlam liquid | 1 | 0.1 |
| South African Post Office | 1 | 0.1 |
| Virgin Money | 2 | 0.1 |
| Total | 852* | 100 |

* The total summarises to 852 because some respondents were banking with more than one bank.

7.2.1.1.4 Provinces of residence

The Free State was the province with the highest number of respondents in this cohort. Forty-two point six percent (42.6%) of the respondents were living in the Free State (see Table 7.4). The high representation of respondents from the Free State in this cohort can be attributed to the data collection points used in the study. In Chapter 6 it was explained that the survey was advertised on the Facebook page of UFS alumni and in the e-mail newsletters to the alumni, the website of OFM (the major radio station in central South Africa) and distributed in a services company in Bloemfontein. Of the remaining 57.4% of the respondents in this cohort, about 20% of the respondents were living in Gauteng, 12.8% in the Western Cape and 7.2% in KwaZulu-Natal.

TABLE 7.4
PROVINCIAL ORIGIN OF THE USERS OF ONLY INTERNET BANKING

| Provinces residing in | n | % |
|------------------------------|----------|----------|
| Eastern Cape | 32 | 4.7 |
| Free State | 289 | 42.6 |
| Gauteng | 136 | 20.1 |
| KwaZulu-Natal | 49 | 7.2 |
| Limpopo | 6 | .9 |
| Mpumalanga | 5 | .7 |
| North West | 31 | 4.6 |
| Northern Cape | 43 | 6.3 |
| Western Cape | 87 | 12.8 |
| Total | 678 | 100.0 |

7.2.1.1.5 Subjective evaluations of the use of internet banking

The respondents were asked to indicate the extent to which they use internet banking. To obtain this information the respondents had to indicate their use of internet banking on an ordinal scale and two dichotomous variable scales. After these questions, respondents were requested to indicate their actual use of internet banking during a typical month. The subjective evaluations of their use of internet banking are reported in Table 7.5 to Table 7.7 and the results of the self-reported actual use of internet banking are presented in Table 7.8 to Table 7.10.

The majority of the respondents in this cohort (47.3% or 321 respondents) indicated that they considered themselves to be high users of internet banking; 41.6% (282 respondents) considered themselves to be moderate users of internet banking, while 75 respondents (11.1%) considered themselves to be low users of internet banking (see Table 7.5).

TABLE 7.5
THE USERS OF ONLY INTERNET BANKING'S RATE OF USE OF INTERNET BANKING

| Considering my monthly usage of internet banking I would consider myself to be a ... | n | % |
|---|----------|----------|
| ...high user of internet banking | 321 | 47.3 |
| ...moderate user of internet banking | 282 | 41.6 |
| ...low user of internet banking | 75 | 11.1 |
| Total | 678 | 100.0 |

The users of internet banking also indicated on a dichotomous scale how often they log into their internet banking accounts during a typical month. A large majority, 85.8%, indicated that they log in to their accounts regularly, while only 96 respondents (14.2%) indicated that they seldom log in to their accounts (see Table 7.6).

TABLE 7.6
THE USERS OF ONLY INTERNET BANKING'S REGULARITY OF ACCESSING THE INTERNET BANKING SERVICE

| During a typical month I ... | n | % |
|--|----------|----------|
| ...regularly log into my internet banking account. | 582 | 85.8 |
| ...seldom log into my internet banking account. | 96 | 14.2 |
| Total | 678 | 100.0 |

TABLE 7.7
USERS OF ONLY INTERNET BANKING CONDUCTING MOST OF THEIR BANKING BY MEANS OF INTERNET BANKING

| | n | % |
|-------|----------|----------|
| Yes | 640 | 94.4 |
| No | 38 | 5.6 |
| Total | 678 | 100.0 |

In the last question capturing the internet banking subjective evaluations of the users of only internet banking, they had to indicate whether they agree or disagree with the statement "I do most of my banking in a month by means of internet banking". Almost 94% (to be precise, 94.4%) of the respondents in this cohort agreed with the statement, while only 38 respondents (5.6%) disagreed with the statement (see Table 7.7).

7.2.1.1.6 Estimated average number of times a user of only internet banking log in to his/her account during a month

Almost 60% of the respondents (to be precise 57.8% or 392 respondents) log in 10 times and less a month, while 181 users of internet banking (26.7%) log in 11-20 times a month (see Table 7.8). The remaining 15.4% of the respondents log in 21 times a month and more.

TABLE 7.8
MONTHLY LOG-INS OF THE USERS OF ONLY INTERNET BANKING

| Log in frequency categories | n | % |
|------------------------------------|----------|----------|
| <= 10 | 392 | 57.8 |
| 11-20 | 181 | 26.7 |
| 21-30 | 70 | 10.3 |
| 31-40 | 11 | 1.6 |
| 41-50 | 11 | 1.6 |
| 51+ | 13 | 1.9 |
| Total | 678 | 100.0 |

7.2.1.1.7 Self-reported use of internet banking

To gain a better understanding of each respondent's actual use of internet banking, respondents in both cohorts were asked to indicate for four specific types of bank transactions the (a) average number of monthly transactions, irrespective of the mode of banking used, and (b) the average number of monthly transactions only by means of internet banking. The four banking activities were account payments, cash transfers, balance enquiries and account statements. By collecting this information it can be determined what the real use of internet banking is for the four banking activities, as well as the overall use of internet banking for these banking activities. The overall use of internet banking was calculated as an average of the four bank transactions and is expressed as a percentage. Table 7.9 shows that 99.3% of the respondents pay accounts monthly. More importantly, they pay 74.1% of their accounts by means of internet banking. Ninety-five point six percent (95.6%) of the respondents do cash transfers in a typical month. Of these cash transfers 93.2% are done by means of internet banking. Ninety-six percent (96%) of the respondents do balance enquiries during a typical month and 88.7%

of these balance enquiries are done via internet banking. Lastly, 83.3% of the respondents draw accounts statements during a typical month and 88.8% of the account statements are drawn via internet banking.

TABLE 7.9
USERS OF ONLY INTERNET BANKING'S SELF-REPORTED USE OF INTERNET
BANKING

| Bank transactions | Percentage of respondents conducting banking activity | n | Mean percentage use of internet banking for banking activity |
|--------------------------|--|----------|---|
| Account payments | 99.3 | 673 | 74.1 |
| Cash transfers | 95.6 | 648 | 93.2 |
| Balance enquiries | 96.0 | 651 | 88.7 |
| Account statements | 83.3 | 565 | 88.8 |

TABLE 7.10
OVERALL USE OF INTERNET BANKING BY THE USERS OF ONLY INTERNET
BANKING

| Overall use of internet banking (%) | n | % |
|--|----------|----------|
| <= 60 | 68 | 10.0 |
| 60.0001-70 | 35 | 5.2 |
| 70.0001-80 | 86 | 12.7 |
| 80.0001-90.0000 | 124 | 18.3 |
| 90.0001+ | 365 | 53.8 |
| Total | 678 | 100.0 |

From the data used for Table 7.9 the overall use of internet banking can be calculated for respondents in the users of only internet banking only cohort. Overall, 53.8% of the users of only internet banking do more than 90% of their banking activities in Table 7.10 by means of internet banking. Eighteen point three percent (18.3%) of the respondents use internet banking for 80.0001-90% of their banking activities and 12.7% for 70.0001-80%.

Lastly, 10% of the users of only internet banking use internet banking overall for 60% and less for the four banking transactions.

7.2.1.2 *Cross-tabulations*

7.2.1.2.1 Age and gender

Table 7.11 shows that for both males and females, the respondents represented various age categories. According to the cross-tabulated data in Table 7.11, more than 60% of the male and female users of only internet banking who participated in the study were 31 years of age and older.

TABLE 7.11
CROSS-TABULATION OF THE USERS OF ONLY INTERNET BANKING'S GENDER
WITH AGE

| Age categories | Male | | Female | |
|----------------|------|------------|--------|------------|
| | n | Column n % | n | Column n % |
| 18-20 | 4 | 1.5% | 3 | 0.7% |
| 21-30 | 81 | 30.7% | 151 | 36.5% |
| 31-40 | 86 | 32.6% | 140 | 33.8% |
| 41-50 | 52 | 19.7% | 67 | 16.2% |
| 51+ | 41 | 15.5% | 53 | 12.8% |
| Total | 264 | 100% | 314 | 100% |

7.2.1.2.2 Gender and bank affiliation

The results in Table 7.12 provide an overview of the banks used by male and female respondents in this cohort. Most male and female respondents in this cohort banked at ABSA, followed by Standard Bank, First National Bank, Nedbank and Capitec.

TABLE 7.12
CROSS-TABULATION OF THE USERS OF ONLY INTERNET BANKING'S BANK
AFFILIATION WITH GENDER

| Bank affiliation | Male | | Female | |
|---------------------------|------|------|--------|------|
| | n | % | n | % |
| ABSA | 103 | 39.0 | 163 | 39.4 |
| Standard Bank | 91 | 34.5 | 143 | 34.5 |
| Nedbank | 46 | 17.4 | 56 | 13.5 |
| First National Bank | 81 | 30.7 | 118 | 28.5 |
| Capitec | 17 | 6.4 | 19 | 4.6 |
| Bidvest | 1 | 0.4 | 0 | 0.0 |
| Investec | 4 | 1.5 | 5 | 1.2 |
| Rand Merchant Bank | 0 | 0.0 | 1 | 0.2 |
| Sanlam liquid | 1 | 0.4 | 0 | 0.0 |
| South African Post Office | 0 | 0.0 | 1 | 0.2 |
| Virgin Money | 1 | 0.4 | 1 | 0.2 |

7.2.1.2.3 Age and the use of internet banking

The results in Table 7.13 show that the 21-30 age category and the 31-40 age category were the two age categories with most respondents in the users of only internet banking sub-sample who considered themselves to be high users of internet banking. Of those users of internet banking who indicated that they are high users of internet banking, 25.9% were 21-30 years of age and 38% of the remaining respondents was part of the 31-40 years age category. Furthermore, of those respondents in this cohort who considered themselves to be moderate users of internet banking, 37.9% of the respondents fell in the 21-30 age category and 30.9% fell in the 31-40 age category. And of the users of only internet banking who considered themselves to be low users of internet banking, 56.0% of the respondents fell in the 21-30 age category and 22.7% fell in the 31-40 age category.

TABLE 7.13
CROSS-TABULATION OF THE USERS OF ONLY INTERNET BANKING'S USE OF
INTERNET BANKING WITH AGE

| Evaluations of the use of internet banking | | Age | | | | |
|--|---|------------|------------|------------|------------|------------|
| | | <= 20 | 21-30 | 31-40 | 41-50 | 51+ |
| | | Row N % | Row N % | Row N % | Row N % | Row N % |
| Considering my monthly usage of internet banking, I would consider myself to be a | high user of internet banking. | 0.9% | 25.9% | 38.0% | 20.9% | 14.3% |
| | moderate user of internet banking. | 1.1% | 37.9% | 30.9% | 15.6% | 14.5% |
| | low user of internet banking. | 1.3% | 56.0% | 22.7% | 10.7% | 9.3% |
| During a typical month I | regularly log into my internet banking account. | 1.0% | 32.0% | 33.3% | 18.7% | 14.9% |
| | seldom log into my internet banking account. | 1.0% | 47.9% | 33.3% | 10.4% | 7.3% |
| I do most of my banking in a month by means of internet banking. | Yes | 1.1% | 34.1% | 33.3% | 17.7% | 13.9% |
| | No | 0.0% | 36.8% | 34.2% | 15.8% | 13.2% |

The results in Table 7.13 also show that the respondents in the age category 21-30 and 31-40 were the categories representing the largest groups of the users of only internet banking sub-sample who regularly or seldom log in to their internet banking account (32% and 33.3%; 47.9% and 33.3%). Likewise, the age categories 21-30 and 31-40 were also the age categories representing most of the respondents who indicated that they do most of their banking with internet banking (34.1% and 33.3%). And similarly, the age category 21-30 and 31-40 were also the age categories representing most of the users of only internet banking who indicated that they do not do most of their banking via internet banking (36.8% and 34.2%, respectively).

7.2.1.3 *Between-group comparisons for the users of only internet banking cohort*

7.2.1.3.1 Age and the use of internet banking

To further explore the possible relationship between the respondents' subjective evaluations of their rate of use of internet banking and age, a one-way ANOVA was conducted. One of the assumptions of the one-way ANOVA is that the variances of the groups that are compared are similar. The test of homogeneity of variances show that the variances of the groups were not homogeneous (Levene statistic=3.872, $df_1=2$, $df_2=525$, $p=.023$). Therefore, the Welch and Brown-Forsythe tests were used to test for the equality of the means. The results of these two tests (see Table 7.14) showed that at least two group means differ significantly. To determine which groups' means were heterogeneous, the Tukey post-hoc test was conducted.

TABLE 7.14
ONE-WAY ANOVA RESULTS FOR AGE AND THE USE OF INTERNET BANKING

| | Statistic ^a | df1 | df2 | Significance |
|----------------|------------------------|-----|---------|--------------|
| Welch | 6.910 | 2 | 216.733 | .001 |
| Brown-Forsythe | 6.177 | 2 | 384.908 | .002 |

a. Asymptotically F distributed.

TABLE 7.15
TUKEY POST-HOC TEST RESULTS FOR AGE AND THE USE OF INTERNET BANKING FOR THE USERS OF ONLY INTERNET BANKING

| Considering my monthly usage of internet banking I would consider myself to be a | n | Subset for alpha = 0.05 | |
|---|-----|-------------------------|-------|
| | | 1 | 2 |
| ...low user. | 75 | 33.61 | |
| ...moderate user. | 282 | | 36.62 |
| ...high user. | 321 | | 38.23 |
| Significance | | 1.000 | .411 |

The results of the post-hoc test in Table 7.15 show that there was no significant difference in the mean age between the internet banking only users who considered themselves to

be high users and the users of internet banking who considered themselves to be moderate users. However, the mean age of these two groups did differ from the mean age of the low users of only internet banking.

7.2.1.3.2 Age and the regularity of logging in to the internet banking account

To further explore whether there is a difference in age between the users of only internet banking who indicated that they regularly log in and those who indicated that they seldom log in, a *t*-test was done. The mean age of those respondents who regularly log in was 37.63 and of the internet banking users who seldom log in 33.53. The Levene's test was significant ($F=5.165$ and $p=0.023$). Thus, equal variances were not assumed. The results of the *t*-test demonstrated that the mean age of the respondents who regularly log in and those who seldom log in did differ statistically ($t=3.636$, $df=136.244$ and $p=0.000$). Thus, it can be inferred that the users of only internet banking who log in regularly are older than the users of internet banking who seldom log in.

7.2.1.3.3 Age and the extent of using internet banking for banking needs

A *t*-test was conducted to provide more insights into the relationship between the users of only internet banking's age and the extent that they use internet banking for their banking needs. The mean age of those respondents who do most of their banking by means of internet banking was 37.06 and of the internet banking users who do not do most of their banking by means of internet banking 36.95. The Levene's test for equality of means was not significant. Therefore, equal variances were assumed. The *t*-test showed that there was no difference between the means of the two groups ($t=-0.059$, $df=676$ and $p=0.953$). Thus, it can be inferred that age does not play a role in whether a bank client do most of his/her banking via internet banking.

7.2.1.3.4 Overall use of internet banking and the rate of use of internet banking

A one-way ANOVA was also done to determine whether the users of only internet banking differ in terms of their overall use of internet banking for the four banking activities. The test of homogeneity of variances showed that the variances of the groups are not homogeneous (Levene statistic=29.272, $df_1=2$, $df_2=675$, $p=0.000$). Thus, the assumption of homogeneity was not met. Therefore, the robust tests of the equality of means were conducted to determine if significant group differences did exist. The Brown-Forsythe and Welch test showed that significant group differences did exist (see Table 7.16). Thus, the next step was to identify the group difference(s).

TABLE 7.16**ROBUST TESTS OF THE EQUALITY OF MEANS RESULTS FOR THE OVERALL USE
AND THE RATE OF USE OF INTERNET BANKING**

| | Statistic^a | df1 | df2 | Significance |
|----------------|------------------------------|------------|------------|---------------------|
| Welch | 25.977 | 2 | 185.612 | .000 |
| Brown-Forsythe | 25.619 | 2 | 165.257 | .000 |

a. Asymptotically F distributed.

TABLE 7.17**TUKEY POST-HOC TEST RESULTS FOR THE OVERALL USE AND THE RATE OF
USE OF INTERNET BANKING BY THE USERS OF ONLY INTERNET BANKING**

| Considering my monthly usage of internet banking I would consider myself to be a ... | n | Subset for alpha = 0.05 | | |
|---|----------|--------------------------------|----------|----------|
| | | 1 | 2 | 3 |
| ...low user. | 75 | 71.465 | | |
| ...moderate user. | 282 | | 83.935 | |
| ...high user. | 321 | | | 90.299 |
| Significance | | 1.000 | 1.000 | 1.000 |

The results of the Tukey post-hoc test in Table 7.17 showed the mean for groups in homogenous subsets. The mean for the low user subset was 71.465%, for the moderate user subset 83.935% and 90.299% for the high user subset. More importantly, the three groups are heterogeneous in terms of their overall use of internet banking for the selected four banking transactions. Thus, it can be inferred that the overall use of internet banking for the four bank activities differ between the three groups. Furthermore, the results in Table 7.17 also provide more insights into what a low, moderate or high user of internet banking in this cohort constitutes. Low users are clients who do approximately 71% of their banking by means of internet banking, moderate users 84% and high users 90%.

7.2.1.3.5 Overall use of internet banking and the regularity of logging in to the internet banking account

The *t*-test results for the regular and seldom users of only internet banking showed that the Levene's test was significant ($F=72.068$, $p=0.000$). Thus, equal variances cannot be assumed. The overall use of internet banking by the respondents who regularly log in to

their internet banking account was 87.741% and 72.397% for those respondents who seldom log in to their internet banking account. The results of the *t*-test demonstrated that the overall use of internet banking for the four banking activities differed significantly between the two groups ($t=5.481$, $df=106.297$ and $p=0.000$). Thus, it can be inferred that the users of only internet banking who regularly log in use internet banking for more of their banking transactions than the users of only internet banking who seldom log in.

7.2.1.3.6 Overall use of internet banking and the extent of using internet banking for banking

The results of the *t*-test showed that the mean for the users of only internet banking who do most of their banking via internet banking differed significantly from the mean of the respondents who answered No to the question “I do most of my banking by means of internet banking”. The mean for those respondents who answered Yes to the question was 87.33% and for those who answered No 55.890%. The results of the Levene’s test was significant ($F=38.262$, $p=0.000$). Thus, equal variances cannot be assumed. The results of the *t*-test was also significant ($t=7.030$, $df=38.581$ and $p=0.000$). Thus, a client that does most of his/her banking by means of internet banking use it for 87% of bank transactions, while a client who does not do most of his or her banking via internet banking use it for approximately 56% of bank transactions.

7.2.2 Users of both internet banking and cellphone banking

In this section the descriptive data of the respondents who use both internet and cellphone banking are analysed by also using frequency tables, cross-tabulations, one-way ANOVAs and *t*-tests.

7.2.2.1 *Frequency tables*

7.2.2.1.1 Gender

The majority of the respondents who were users of both internet and cellphone banking were females. In total, females represented 52.5% (258 respondents) of this cohort. Two hundred and thirty three (233) male users of both internet and cellphone banking participated in the study (see Table 7.18).

TABLE 7.18
GENDER OF THE CONCURRENT USERS

| Gender | n | % |
|---------------|----------|----------|
| Males | 233 | 47.5 |
| Females | 258 | 52.5 |
| Total | 491 | 100 |

7.2.2.1.2 Age

The concurrent users in the study were as young as 18 years of age. The age category with the least number of respondents in this cohort was the age category 18-20 years. Only seven (7) respondents in this age category participated in the study. Table 7.19 shows that the age category with most respondents was the 21-30 age category. Furthermore, 154 of the concurrent users in the study were in the age category 31-40 years. The users of both internet and cellphone banking also included many older respondents making the sample also more representative of the general population. Thirty (30) respondents (6.1%) were 51 years of age and older.

TABLE 7.19
AGE OF THE CONCURRENT USERS

| Age categories | n | % |
|-----------------------|----------|----------|
| 18-20 | 7 | 1.4 |
| 21-30 | 229 | 46.6 |
| 31-40 | 154 | 31.4 |
| 41-50 | 71 | 14.5 |
| 51 and older | 30 | 6.1 |
| Total | 491 | 100.0 |

The frequencies of the age categories in Table 7.19 also follow the same distribution as the reported age of South African internet users in the South African Media and Entertainment Outlook: 2010 – 2014 (PricewaterhouseCoopers, 2010). Thus, it can be concluded that the sample of the concurrent users is also representative of the general internet population of South Africa in terms of age.

7.2.2.1.3 Bank affiliation

The users of both internet and cellphone banking were customers of 11 different banks (see Table 7.20). One hundred and eighty one (181) concurrent users, representing 36.9% of the respondents in this cohort, were customers of ABSA, whilst 47.7% of the respondents (234) were customers of First National Banking. Furthermore, in this cohort 99 respondents were customers of Standard bank and 65 respondents were customers of Nedbank. Only 18 of the respondents were customers of Capitec. The other banks; Albaraka Bank, Bank of Athens, Chase, Investec, South African Post Office and Virgin Money, were each represented by three or less respondents each in this cohort.

TABLE 7.20
BANK AFFILIATION OF THE CONCURRENT USERS

| Bank | n | % |
|---------------------------|----------|----------|
| ABSA | 181 | 36.9 |
| Capitec | 18 | 3.7 |
| First National Bank | 234 | 47.7 |
| Nedbank | 65 | 13.2 |
| Standard Bank | 99 | 20.2 |
| Albaraka Bank | 1 | 0.2 |
| Bank of Athens | 2 | 0.4 |
| Chase | 1 | 0.2 |
| Investec | 3 | 0.6 |
| South African Post Office | 1 | 0.2 |
| Virgin Money | 1 | 0.2 |
| Total | 606* | 100 |

* The total summarises to 606 because some respondents were banking with more than one bank.

The majority of the respondents in this cohort also bank with the 'Big Four' South African banks. The distribution of the respondents in this cohort across the four banks is coherent with the internet and cellphone banking statistics reported in Chapter 3. Thus, it can be concluded the sample of users of both internet and cellphone banking is representative of the internet and cellphone banking market in South Africa.

7.2.2.1.4 Provinces of residence

Forty-five percent (45%) of the respondents were from the Free State (see Table 7.21). The Free State was the province with the highest number of respondents in this cohort. As explained in the discussion of the results of the users of only internet banking, the high presence of respondents living in the Free State in the samples is most probably due to the data collection points used in the survey. Of the remaining 55% of the sample of concurrent users, 21% of the respondents were living in Gauteng, 6.7% in the Northern Cape and 5.7% in the Western Cape.

TABLE 7.21
PROVINCIAL ORIGIN OF THE CONCURRENT USERS

| Provinces residing in | n | % |
|------------------------------|----------|----------|
| Eastern Cape | 21 | 4.3 |
| Free State | 221 | 45.0 |
| Gauteng | 103 | 21.0 |
| KwaZulu-Natal | 27 | 5.5 |
| Limpopo | 5 | 1.0 |
| Mphumulanga | 2 | .4 |
| North West | 28 | 5.7 |
| Northern Cape | 33 | 6.7 |
| Western Cape | 51 | 10.4 |
| Total | 491 | 100.0 |

7.2.2.1.5 Subjective evaluations

The users of both internet and cellphone banking also indicated the extent to which they use internet banking so that a comparison can be done between their reported use of internet banking and the reported use of internet banking by the users of only internet banking. The subjective evaluations of the use of internet banking of the concurrent users are reported in Table 7.22 to Table 7.24 and the results of the self-reported actual use of internet banking are presented in Table 7.25 to Table 7.27.

Slightly more than 50% of the concurrent users (to be precise 50.7%) indicated that they considered themselves to be high users of internet banking, 38.5% (189 respondents) considered themselves to be moderate users of internet banking, while only 53 respondents (10.8%) considered themselves to be low users of internet banking.

TABLE 7.22
THE CONCURRENT USERS' RATE OF USE OF INTERNET BANKING

| Considering my monthly usage of internet banking, I would consider myself to be a ... | n | % |
|--|----------|----------|
| ...high user of internet banking | 249 | 50.7 |
| ...moderate user of internet banking | 189 | 38.5 |
| ...low user of internet banking | 53 | 10.8 |
| Total | 491 | 100 |

The concurrent users were also asked to indicate on a dichotomous variable scale how often they log in to their internet banking accounts during a typical month. A large majority, 88% of the respondents, indicated that they log in to their account regularly, whilst only 59 respondents (12%) indicated that they seldom log into their accounts during a month (see Table 7.23).

TABLE 7.23
THE CONCURRENT USERS' REGULARITY OF ACCESSING THE INTERNET BANKING SERVICE

| During a typical month I | n | % |
|--|----------|----------|
| ...regularly log into my internet banking account. | 432 | 88.0 |
| ...seldom log into my internet banking account. | 59 | 12.0 |
| Total | 491 | 100.0 |

TABLE 7.24
CONCURRENT USERS CONDUCTING MOST OF THEIR BANKING BY MEANS OF INTERNET BANKING

| | n | % |
|-------|----------|----------|
| Yes | 432 | 88.0 |
| No | 59 | 12.0 |
| Total | 491 | 100 |

In the last question capturing the users of both internet and cellphone banking's subjective evaluations of their use of internet banking, they had to indicate (Yes or No) whether they agree or disagree with the statement "I do most of my banking in a month by means of internet banking". Eighty eight percent (88%) agreed with the statement, whilst 59 concurrent users (12%) disagreed with the statement (see Table 7.24).

7.2.2.1.6 Estimated average number of times a user of both internet and cellphone banking log in to his/her internet banking account during a month

The respondents also reported the average number of times that they log in to their internet banking account during a month. Fifty-four percent (54%) of the respondents log in 10 times and less in a month and 143 concurrent users (29.1%) log in 11-20 times in a month (see Table 7.25). The remaining 16.8% of the respondents log-in 21 times a month and more.

TABLE 7.25
MONTHLY LOG-INS BY THE CONCURRENT USERS

| Log in frequency categories | n | % |
|------------------------------------|----------|----------|
| <=10 | 265 | 54.0 |
| 11-20 | 143 | 29.1 |
| 21-30 | 58 | 11.8 |
| 31-40 | 10 | 2.0 |
| 41-50 | 7 | 1.4 |
| 51+ | 8 | 1.6 |
| Total | 491 | 100.0 |

7.2.2.1.7 Self-reported use of internet banking

The users of both internet and cellphone banking also indicated their estimated use of internet banking for the four listed banking activities. Table 7.26 shows that 99.6% of the concurrent users do pay accounts monthly. More importantly, they pay 73% of their accounts by means of internet banking. Ninety-five point seven percent (95.7%) of the concurrent users do cash transfers in a typical month. Of these cash transfers 88.4% are done by means of internet banking. Ninety-eight point eight percent (98.8%) of the users of both internet and cellphone banking do balance enquiries during a typical month and 78.4% of these balance enquiries are done via internet banking. Lastly, 87.8% of the concurrent users request accounts statements during a typical month and 83.5% of the account statements are drawn via internet banking.

TABLE 7.26
CONCURRENT USERS' SELF-REPORTED USE OF INTERNET BANKING

| Banking activities | Users of both internet and cellphone banking | | |
|--------------------|---|-----|--|
| | Percentage of respondents conducting banking activity | n | Mean percentage use of internet banking for banking activity |
| Account payments | 99.6 | 489 | 73.0 |
| Cash transfers | 95.7 | 470 | 88.4 |
| Balance enquiries | 98.8 | 485 | 78.4 |
| Account statements | 87.8 | 431 | 83.5 |

From the data used for Table 7.26 the overall use of internet banking by the concurrent users was calculated (see Table 7.27). Overall, 37.9% of the respondents use internet banking for 90.0001% and more for their banking activities. 21.2% of the respondents use internet banking for 80.0001-90%, 16.3% for 70.0001-80% and 8.4% for 60.0001-70% of their banking needs. Only 16.3% (80) of the respondents use internet banking for 60% and less for their banking activities.

TABLE 7.27
CONCURRENT USERS' OVERALL USE OF INTERNET BANKING

| Overall use of internet banking (%) | n | % |
|-------------------------------------|-----|-------|
| <= 60 | 80 | 16.3 |
| 60.0001-70 | 41 | 8.4 |
| 70.0001-80 | 80 | 16.3 |
| 80.0001-90.0000 | 104 | 21.2 |
| 90.0001+ | 186 | 37.9 |
| Total | 491 | 100.0 |

7.2.2.2 Cross-tabulations

7.2.2.2.1 Age and gender

Similar to the results in the users of only internet banking cohort, the most males and females in the concurrent users' cohort were in the age categories of 21-30 and 31-40 (see Table 7.28). Also interesting to point out, the representation of males and females in each age category was very similar. For example, 46.4% of the male respondents in this cohort were in the age category 21-30, whilst 46.9% of the female respondents in this cohort were in the same age category.

TABLE 7.28
CROSS-TABULATION OF THE CONCURRENT USERS' GENDER WITH AGE

| Age categories | Male | | Female | |
|----------------|------|------|--------|------|
| | n | % | n | % |
| 18-20 | 4 | 1.7 | 3 | 1.2 |
| 21-30 | 108 | 46.4 | 121 | 46.9 |
| 31-40 | 73 | 31.3 | 81 | 31.4 |
| 41-50 | 35 | 15.0 | 36 | 14.0 |
| 51+ | 13 | 5.6 | 17 | 6.6 |

7.2.2.2.2 Gender and financial institution used

In the concurrent user cohort, in contrast with the results of the users of only internet banking, most males and females banked with First National Bank (see Table 7.29). Furthermore, 37.8% of the males and 36% of the females banked with ABSA, while 21.9% of males and 18.6% of the females in this cohort banked with Standard Bank.

TABLE 7.29
CROSS-TABULATION OF THE CONCURRENT USERS BANK AFFILIATION WITH
GENDER

| Bank affiliation | Male | | Female | |
|---------------------------|------|-------|--------|-------|
| | n | % | n | % |
| ABSA | 88 | 37.8% | 93 | 36.0% |
| Standard Bank | 51 | 21.9% | 48 | 18.6% |
| Nedbank | 32 | 13.7% | 33 | 12.8% |
| First National Bank | 109 | 46.8% | 125 | 48.4% |
| Capitec | 12 | 5.2% | 6 | 2.3% |
| Albaraka Bank | 1 | 0.4% | 0 | 0.0% |
| Bank of Athens | 1 | 0.4% | 1 | 0.4% |
| Chase | 0 | 0.0% | 1 | 0.4% |
| Investec | 3 | 1.3% | 0 | 0.0% |
| South African Post office | 1 | 0.4% | 0 | 0.0% |
| Virgin Money | 1 | 0.4% | 0 | 0.0% |

7.2.2.2.3 Age and the subjective evaluations of the use of internet banking

The results in Table 7.30 show that the 21-30 age category and the 31-40 age category were the two age categories with the most respondents. Of the concurrent users who indicated that they are high users of internet banking, 43.8% of them fell in the 21-30 age category and 33.3% of the remaining respondents fell in the age category 31-40 years.

Furthermore, of those respondents in this cohort who considered themselves to be moderate users of internet banking, 48.7% of the respondents fell in the 21-30 age category and 30.2% fell in the 31-40 age category. Amongst the concurrent users who considered themselves to be low users of internet banking, 52.8% of the respondents fell in the 21-30 age category and 26.4% fell in the 31-40 age category.

The results in Table 7.30 also show that the users of internet and cellphone banking in the age category 21-30 and 31-40 were the categories represented by most of the respondents in this cohort who regularly and seldom log in to their internet banking account (44.7% and 32.6% ; 61% and 22%). Likewise, the age category 21-30 and 31-40 were also the age categories representing most of the concurrent users who indicated that they do most of their banking with internet banking (45.6% and 31.7%). And lastly, the age category 21-30 and 31-40 were also the two age categories representing most of the

concurrent users who indicated that they do not do most of their banking via internet banking (54.2% and 28.8%).

TABLE 7.30
CROSS-TABULATION OF THE CONCURRENT USERS' USE OF INTERNET BANKING
WITH AGE

| Evaluations of the use of internet banking | | Age | | | | |
|---|---|------------|------------|------------|------------|------------|
| | | <= 20 | 21-30 | 31-40 | 41-50 | 51+ |
| | | Row n % | Row n % | Row n % | Row n % | Row n % |
| Considering my monthly usage of internet banking I would consider myself to be a | high user of internet banking. | 0.8% | 43.8% | 33.3% | 16.9% | 5.2% |
| | moderate user of internet banking. | 1.6% | 48.7% | 30.2% | 12.7% | 6.9% |
| | low user of internet banking. | 3.8% | 52.8% | 26.4% | 9.4% | 7.5% |
| During a typical month I | regularly log into my internet banking account. | 0.9% | 44.7% | 32.6% | 15.5% | 6.2% |
| | seldom log into my internet banking account. | 5.1% | 61.0% | 22.0% | 6.8% | 5.1% |
| I do most of my banking in a month by means of internet banking. | Yes | 0.9% | 45.6% | 31.7% | 15.7% | 6.0% |
| | No | 5.1% | 54.2% | 28.8% | 5.1% | 6.8% |

7.2.2.3 Between-group comparisons

7.2.2.3.1 Age and the use of internet banking

To further explore the possible relationship between the users of both internet and cellphone banking's subjective evaluation of their use of internet banking and age, a one-way ANOVA was conducted. The test of homogeneity of variances showed that the variances of the groups were homogeneous (Levene statistic = 0.594, df1 = 2, df2 = 488,

$p=0.553$). The results of the one-way ANOVA in Table 7.31 showed that the groups means did not differ significantly ($p>0.05$). Therefore, it can be concluded that age did not play a role in respondents' subjective evaluation of their use of internet banking.

TABLE 7.31
ONE-WAY ANOVA RESULTS FOR AGE AND THE USE OF INTERNET BANKING

| | Sum of Squares | df | Mean Square | F | Significance |
|----------------|-----------------------|-----------|--------------------|----------|---------------------|
| Between groups | 68.058 | 2 | 34.029 | .395 | .674 |
| Within groups | 42048.052 | 488 | 86.164 | | |
| Total | 42116.110 | 490 | | | |

7.2.2.3.2 Age and the regularity of logging in to the internet banking account

A *t*-test was conducted to establish conclusive evidence on whether a difference in age means existed between the concurrent users who regularly log in to their internet banking account and those who log in seldom. The mean age of the concurrent users who regularly log in to their internet banking account was 33.47 and 30.36 for the respondents in this cohort who log in seldom. The Levene's test was not significant ($F=1.334$ and $p=.249$). Thus, equal variances were assumed. The results of the *t*-test demonstrated that the mean age of the users of both internet and cellphone banking who regularly log in to their internet banking accounts and those who seldom log in did differ statistically ($t=2.436$, $df=48$ and $p=0.015$). Thus, it can be inferred that the concurrent users who regularly log in are older than the concurrent users who seldom log in.

7.2.2.3.3 Age and the extent of using internet banking for banking needs

A *t*-test was also done to establish conclusive evidence of a difference in age across the two groups (the respondents who do most of their banking by means of internet banking and the respondents who do not). The Levene's test for equality of means was not significant ($p=0.925$). Therefore, equal variances were assumed. The *t*-test showed that there was not a difference between the means of the two groups ($t=1.754$, $df=489$ and $p=0.080$). Thus, it can be inferred that age does not play a role in whether a bank customer do most of his/her banking via internet banking.

7.2.2.3.4 Overall use of internet banking and the rate of use of internet banking

A one-way ANOVA was used to determine if the concurrent users, based on the subjective evaluation of their use of internet banking, differ in terms of their average use of internet banking for the four banking activities. The test of homogeneity of variances showed that the variances of the groups were not homogeneous (Levene statistic = 20.364, $df_1 = 2$, $df_2 = 488$, $p=0.000$). Thus, the assumption of homogeneity was not met. Therefore, the robust test of the equality of means was conducted to determine if significant group differences did exist. The Brown-Forsythe and Welch test showed that significant group differences did exist (see Table 7.32). Thus, the next step was to identify the group difference(s).

TABLE 7.32

ROBUST TESTS OF EQUALITY OF MEANS RESULTS FOR THE OVERALL USE AND THE RATE OF USE OF INTERNET BANKING

| | Statistic^a | df1 | df2 | Significance |
|----------------|------------------------------|------------|------------|---------------------|
| Welch | 23.639 | 2 | 129.928 | .000 |
| Brown-Forsythe | 24.644 | 2 | 116.321 | .000 |

a. Asymptotically F distributed.

The results of the Tukey post-hoc test in Table 7.33 show the mean for groups in homogenous subsets.

TABLE 7.33

TUKEY POST-HOC TEST RESULTS FOR THE OVERALL USE AND THE RATE OF USE OF INTERNET BANKING BY THE USERS OF INTERNET BANKING

| Considering my monthly usage of internet banking I would consider myself to be a ... | N | Subset for alpha = 0.05 | | |
|---|----------|--------------------------------|----------|----------|
| | | 1 | 2 | 3 |
| ...low user of internet banking. | 53 | 62.933 | | |
| ...moderate user of internet banking. | 189 | | 78.716 | |
| ...high user of internet banking. | 249 | | | 85.839 |
| Significance | | 1.000 | 1.000 | 1.000 |

The mean for the low user subset is 62.933%, for the moderate user subset 78.716% and 85.839% for the high user subset. More importantly, the results in Table 7.33 indicate that

three groups were heterogeneous in terms of their overall use of internet banking for the four banking transactions. Thus, it can be inferred that the overall use of internet banking differ significantly between the three groups of users. The results in Table 7.33 also show that a low user of internet banking in this cohort does 63% of his/her banking by means of internet banking, a moderate user 79% and a high user 86%.

7.2.2.3.5 Overall use of internet banking and the regularity of logging in to the internet banking account

The Levene's test was significant ($F=26.309$, $p=0.000$). Thus, equal variances were not assumed. The mean percentage of use of internet banking by the concurrent users who regularly log in to their internet banking account was 83.137% and 62.229% for those respondents who seldom log in to their internet banking account. The results of the t -test demonstrated that the overall use of internet banking for the four banking activities differed significantly between the two groups ($t=6.074$, $df=65.229$ and $p=0.000$). Thus, it can be inferred that the concurrent user who regularly log in use internet banking to do more of their banking activities by means of internet banking than the concurrent users who seldom log in.

7.2.2.3.6 Overall use of internet banking and the extent of using internet banking for banking

A t -test showed that the mean for the concurrent users who do most of their banking via internet banking differs significantly from the mean of the respondents who answered No to the question "I do most of my banking by means of internet banking". The mean for those respondents who answered Yes to the question was 83.771% and for those who answered No 57.589%. The results of the Levene test was significant ($F=27.435$, $p=0.000$). Thus, equal variances were not assumed. The results of the t -test was also significant ($t=7.605$, $df=64.491$ and $p=0.000$). Thus, it can be concluded that a concurrent user that says that he/she does most of his/her banking by means of internet banking, does 84% of his/her banking via internet banking. On the other hand, a concurrent user that says that he/she does not do most of his/her banking via internet banking, does approximately 58% of his/her banking by means of internet banking.

7.2.3 Between-cohort comparisons on the use of internet banking for bank transactions

7.2.3.1 *Accounts paid by means of internet banking*

A *t*-test was used to compare the mean use of internet banking to pay accounts. The mean use of internet banking to pay accounts by the concurrent users was 73.037%, while the users of only internet banking pay 74.149% of their account by means of internet banking. The results of the Levene's test was not significant ($F=1.241$, $p=0.265$). Thus, equal variances were assumed. The results of the *t*-test was also not significant ($t=-0.642$, $df=1160$ and $p=.521$). Thus, it can be inferred that both cohorts use internet banking to the same extent to pay accounts.

7.2.3.2 *Cash transfers by means of internet banking*

The use of internet banking to do cash transfers was also compared across the two cohorts by means of a *t*-test. The mean use of internet banking to do cash transfers by concurrent users was 88.444% of cash transfers, while the users of only internet banking did 93.176% of their cash transfers by means of internet banking. The results of the Levene's test was significant ($F=30.988$, $p=0.000$). Thus, equal variances were not assumed. The results of the *t*-test was significant ($t=-3.393$, $df=903.494$ and $p=.001$). Thus, it can be inferred that the users of internet banking use internet banking more for cash transfers than the users of both internet and cellphone banking.

7.2.3.3 *Balance enquiries by means of internet banking*

The next between-cohort comparison was on the use of internet banking for balance enquiries. The mean use of internet banking for balance enquires by the concurrent users was 78.404%, while the users of internet banking did 88.700% of their balance enquiries by means of internet banking. The results of the Levene's test was significant ($F=47.228$, $p=0.000$). Thus, equal variances were not assumed. The results of the *t*-test was also significant ($t=-6.082$, $df=933.002$ and $p=.000$). Thus, it can be inferred that the users of only internet use internet banking more for balance enquiries than the users of both internet and cellphone banking.

7.2.3.4 Account statements drawn by means of internet banking

The last comparison between the two cohorts was on the use of internet banking for obtaining account statements. The mean use of internet banking for account statements by the users of both internet and cellphone banking was 83.525%, while the users of only internet banking did use internet banking to obtain 88.846% of their account statements. The results of the Levene's test was significant ($F=18.568$, $p=0.000$). Thus, equal variances were not assumed. The results of the t -test was also significant ($t=-2.841$, $df=860.639$ and $p=.005$). Thus, it can be inferred that users of only internet use internet banking more for account statements than the concurrent users of internet and cellphone banking.

7.3 ASSESSMENT OF THE MEASUREMENT MODEL: THE USERS OF INTERNET BANKING

The measurement model was assessed with the data of the users of internet banking by means of a confirmatory factor analysis (CFA) to formally test whether a set of indicators shares enough common variance to be considered measures of a single factor (Bagozzi and Yi, 2012). The initial assessment of the measurement model with the data of the users of only internet banking showed reasonable fit. As can be seen from Table 7.34, the model fit indices statistics represented reasonable fit according to the cut-off values reported in Table 6.13. The χ^2/df was just below the recommended cut-off value of 3, whilst the CFI and TLI were above 0.9, and the RMSEA was well below the recommended cut-off value of 0.08.

Inspection of the modification indices showed that the errors of item IBCON4 and item IBCON5 should be correlated. (MI of 206.63 with a Par Change of 0.043). A possible reasons for the suggested modification was that the content of item IBCON4 and item IBCON5 overlaps ('effort' could be conceptually very similar to 'hassle' for the respondents). Thus, to improve the fit of the measurement model, item BCON5 was removed from the analysis, since the standardised loading of item IBCON4 was higher than the standardised loading of IBCON5. As can be seen from Table 7.34, the model fit of the measurement model improved after this modification. The χ^2/df improved from 2.919 to 2.621, CFI improved to above 0.95, the TLI improved to almost 0.95, whilst the RMSEA was below 0.05 after the modification.

TABLE 7.34
MODEL FIT OF THE MEASUREMENT OF MODEL FOR THE USERS OF ONLY
INTERNET BANKING

| Model fit indices | Initial measurement model | Modified measurement model |
|--------------------------|----------------------------------|-----------------------------------|
| Chi-square | 2259.573 | 1923.464 |
| <i>df</i> | 774 | 734 |
| χ^2/df | 2.919 | 2.621 |
| CFI | 0.934 | 0.952 |
| TLI | 0.937 | 0.947 |
| RMSEA | 0.053 | 0.049 |

The standardised items loadings (SW), construct reliability (CR) and average variance extracted (AVE) values for each construct are presented in Table 7.35. As can be seen from Table 7.35, almost all of the standardised loadings are above 0.7, except for IBFC3 that is just above 0.6. The construct reliability of all constructs is above 0.7 and the AVEs above 0.5.

TABLE 7.35
CONSTRUCT RELIABILITY AND VALIDITY OF THE USERS OF ONLY INTERNET
BANKING MEASUREMENT MODEL

| Construct | Item | SW | CR | AVE |
|---|-------------|-----------|-----------|------------|
| Perceived convenience of internet banking (IBCON) | IBCON1 | 0.901 | 0.941 | 0.762 |
| | IBCON2 | 0.957 | | |
| | IBCON3 | 0.918 | | |
| | IBCON4 | 0.847 | | |
| | IBCON6 | 0.721 | | |

| | | | | |
|--|--------|-------|-------|-------|
| Perceived time saving of internet banking (IBTS) | IBTS1 | 0.727 | 0.901 | 0.647 |
| | IBTS2 | 0.748 | | |
| | IBTS3 | 0.843 | | |
| | IBTS4 | 0.826 | | |
| | IBTS5 | 0.869 | | |
| Internet banking facilitating conditions (IBFC) | IBFC1 | 0.781 | 0.784 | 0.552 |
| | IBFC2 | 0.822 | | |
| | IBFC3 | 0.608 | | |
| Perceived trust in internet banking (IBT) | IBT1 | 0.753 | 0.894 | 0.679 |
| | IBT2 | 0.827 | | |
| | IBT3 | 0.830 | | |
| | IBT4 | 0.881 | | |
| Perceived risk of internet banking (IBR) | IBR1 | 0.923 | 0.957 | 0.849 |
| | IBR2 | 0.926 | | |
| | IBR3 | 0.908 | | |
| | IBR4 | 0.929 | | |
| Perceived ease of use of internet banking (IBEOU) | IBEOU1 | 0.812 | 0.899 | 0.691 |
| | IBEOU2 | 0.708 | | |
| | IBEOU3 | 0.913 | | |
| | IBEOU4 | 0.878 | | |
| Perceived internet banking self-efficacy (IBSE) | IBSE1 | 0.893 | 0.903 | 0.702 |
| | IBSE2 | 0.911 | | |
| | IBSE3 | 0.810 | | |
| | IBSE4 | 0.723 | | |
| Perceived usefulness of cellphone banking (CBU) | CBU1 | 0.846 | 0.929 | 0.766 |
| | CBU2 | 0.918 | | |
| | CBU3 | 0.853 | | |
| | CBU4 | 0.883 | | |
| Perceived ease of use of cellphone banking (CBEOU) | CBEOU1 | 0.752 | 0.905 | 0.706 |
| | CBEOU2 | 0.907 | | |
| | CBEOU3 | 0.914 | | |
| | CBEOU4 | 0.776 | | |

| | | | | |
|---|------|-------|-------|-------|
| Cellphone banking intention to use (CBI) | CBI1 | 0.939 | 0.970 | 0.889 |
| | CBI2 | 0.900 | | |
| | CBI3 | 0.969 | | |
| | CBI4 | 0.961 | | |

An inspection of the squared correlation between each pair of constructs in the measurement model and the AVE for each associated construct, showed that the AVE for each construct was greater than the squared correlation (see Table 7.36). Hence, the results in Table 7.36 provide adequate evidence of discriminant validity according to the approach of Fornell and Larcker (1981).

Considering the results presented to this point of the assessment of the measurement model of the users of only internet banking, it is reasonable to assert that the results provide adequate support for construct validity and discriminant validity of the measurement model.

TABLE 7.36

AVERAGE VARIANCE EXTRACTED COMPARED WITH SQUARED CORRELATIONS

| | CBI | CBEOU | CBU | IBSE | IBEOU | IBR | IBT | IBFC | IBTS | IBCON |
|-------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| CBI | <i>0.889</i> | | | | | | | | | |
| CBEOU | 0.158 | <i>0.706</i> | | | | | | | | |
| CBU | 0.434 | 0.235 | <i>0.766</i> | | | | | | | |
| IBSE | 0.009 | 0.069 | 0.006 | <i>0.702</i> | | | | | | |
| IBEOU | 0.010 | 0.050 | 0.007 | 0.408 | <i>0.691</i> | | | | | |
| IBR | 0.002 | 0.000 | 0.003 | 0.086 | 0.059 | <i>0.849</i> | | | | |
| IBT | 0.002 | 0.025 | 0.013 | 0.247 | 0.196 | 0.221 | <i>0.679</i> | | | |
| IBFC | 0.001 | 0.029 | 0.000 | 0.288 | 0.205 | 0.051 | 0.154 | <i>0.552</i> | | |
| IBTS | 0.000 | 0.038 | 0.002 | 0.347 | 0.244 | 0.011 | 0.124 | 0.377 | <i>0.647</i> | |
| IBCON | 0.000 | 0.034 | 0.006 | 0.260 | 0.186 | 0.012 | 0.101 | 0.339 | 0.581 | <i>0.762</i> |

Note: AVE in bold and italics above the diagonal and squared correlations below the diagonal

7.4 ASSESSMENT OF THE MEASUREMENT MODEL: THE USERS OF BOTH INTERNET AND CELLPHONE BANKING

The initial assessment of the measurement model with the data of the concurrent users showed reasonable model fit. The χ^2/df was 2.741, the CFI was 0.935, the RMSEA 0.060 and the TLI was 0.911 (see Table 7.37).

TABLE 7.37
MODEL FIT OF THE MEASUREMENT OF MODEL OF THE USERS OF BOTH
INTERNET AND CELLPHONE BANKING

| Model fit indices | Initial measurement model | Modified measurement model |
|--------------------------|----------------------------------|-----------------------------------|
| Chi-square | 212.865 | 1810.44 |
| <i>df</i> | 774 | 734 |
| χ^2/df | 2.741 | 2.467 |
| CFI | 0.935 | 0.946 |
| TLI | 0.911 | 0.939 |
| RMSEA | 0.060 | 0.055 |

Inspection of the modification indices of the concurrent users' measurement model showed that the errors of item IBCON4 and item IBCON5 should be correlated (MI of 137.445 with a Par Change of 0.07). Thus, to improve model fit and to maintain factorial invariance, item IBCON5 was removed from the analysis, since the standardised loading of item IBCON4 was also higher than the standardised loading of IBCON5. As can be seen from Table 7.37, the values of the model fit indices of the modified measurement model also improved after this modification. The χ^2/df improved to 2.467, the CFI from 0.935 to 0.946, the TLI improved to 0.939 and the RMSEA improved to 0.055.

The standardised items loadings, construct reliability and AVE values for each construct in the concurrent users' measurement model are presented in Table 7.38. As can be seen from Table 7.38 the standardised loadings are above 0.7 or close to 0.7, while the construct reliability of all constructs is above 0.7 and the AVE of all constructs above 0.5

TABLE 7.38
CONSTRUCT RELIABILITY AND VALIDITY OF THE USERS OF BOTH INTERNET
AND CELLPHONE BANKING MEASUREMENT MODEL

| Construct | Item | SW | CR | AVE |
|---|-------------|-----------|-----------|------------|
| Perceived convenience of internet banking (IBCON) | IBCON1 | 0.91 | 0.946 | 0.780 |
| | IBCON2 | 0.973 | | |
| | IBCON3 | 0.967 | | |
| | IBCON4 | 0.846 | | |
| | IBCON6 | 0.687 | | |
| Perceived time saving of internet banking (IBTS) | IBTS1 | 0.825 | 0.946 | 0.778 |
| | IBTS2 | 0.910 | | |
| | IBTS3 | 0.909 | | |
| | IBTS4 | 0.853 | | |
| | IBTS5 | 0.910 | | |
| Internet banking facilitating conditions (IBFC) | IBFC1 | 0.661 | 0.786 | 0.553 |
| | IBFC2 | 0.862 | | |
| | IBFC3 | 0.693 | | |
| Perceived trust in internet banking (IBT) | IBT1 | 0.744 | 0.883 | 0.655 |
| | IBT2 | 0.842 | | |
| | IBT3 | 0.802 | | |
| | IBT4 | 0.844 | | |
| Perceived risk of internet banking (IBR) | IBR1 | 0.921 | 0.848 | 0.837 |
| | IBR2 | 0.909 | | |
| | IBR3 | 0.9 | | |
| | IBR4 | 0.929 | | |
| Perceived ease of use of internet banking (IBEOU) | IBEOU1 | 0.862 | 0.908 | 0.713 |
| | IBEOU2 | 0.74 | | |
| | IBEOU3 | 0.888 | | |
| | IBEOU4 | 0.878 | | |
| Perceived internet banking self-efficacy (IBSE) | IBSE1 | 0.889 | 0.914 | 0.726 |
| | IBSE2 | 0.885 | | |
| | IBSE3 | 0.885 | | |
| | IBSE4 | 0.741 | | |

| | | | | |
|--|--------|-------|-------|-------|
| Perceived usefulness of cellphone banking (CBU) | CBU1 | 0.881 | 0.926 | 0.758 |
| | CBU2 | 0.92 | | |
| | CBU3 | 0.821 | | |
| | CBU4 | 0.858 | | |
| Perceived ease of use of cellphone banking (CBEOU) | CBEOU1 | 0.888 | 0.924 | 0.752 |
| | CBEOU2 | 0.884 | | |
| | CBEOU3 | 0.907 | | |
| | CBEOU4 | 0.784 | | |
| Cellphone banking intention to use (CBIU) | CBI1 | 0.949 | 0.943 | 0.807 |
| | CBI2 | 0.834 | | |
| | CBI3 | 0.908 | | |
| | CBI4 | 0.898 | | |

An inspection of the squared correlation between each pair of constructs in the concurrent users' measurement model and the AVE for each associated construct showed that AVE was greater than the squared correlation for almost all of the constructs (see Table 7.39). However, the IBFC – IBTS inter-construct squared correlation was greater than the AVE of IBFC. Furthermore, the IBTS – IBCON inter-construct squared correlation was also greater than the AVE of both IBTS and IBCON. Therefore, to further investigate the discriminant validity of these constructs, the paired-construct test described in Chapter 6 was followed.

TABLE 7.39

AVERAGE VARIANCE EXTRACTED COMPARED WITH SQUARED CORRELATIONS

| | CBIU | CBEOU | CBU | IBSE | IBEOU | IBR | IBT | IBFC | IBTS | IBCON |
|-------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| CBIU | <i>0.807</i> | | | | | | | | | |
| CBEOU | 0.529 | <i>0.752</i> | | | | | | | | |
| CBU | 0.658 | 0.454 | <i>0.758</i> | | | | | | | |
| IBSE | 0.052 | 0.079 | 0.052 | <i>0.726</i> | | | | | | |
| IBEOU | 0.042 | 0.168 | 0.046 | 0.393 | <i>0.713</i> | | | | | |
| IBR | 0.001 | 0.006 | 0.004 | 0.074 | 0.100 | <i>0.837</i> | | | | |
| IBT | 0.036 | 0.062 | 0.033 | 0.289 | 0.287 | 0.245 | <i>0.655</i> | | | |
| IBFC | 0.052 | 0.078 | 0.049 | 0.382 | 0.309 | 0.020 | 0.231 | <i>0.553</i> | | |
| IBTS | 0.077 | 0.085 | 0.093 | 0.412 | 0.295 | 0.011 | 0.205 | 0.601 | <i>0.778</i> | |
| IBCON | 0.084 | 0.087 | 0.097 | 0.343 | 0.277 | 0.016 | 0.211 | 0.513 | 0.783 | <i>0.780</i> |

Note: A.V.E. in bold and italics above the diagonal and squared correlations below the diagonal

The results of the first step of the paired-construct test, a Chi-square difference test between the unconstrained paired-construct model and a constrained model, are

presented in Table 7.40. As can be seen from Table 7.40, for both cases the results of the Chi-square difference test was significant. The second step of the paired-construct test was to estimate the confidence interval for the correlation between the constructs in question. The 95% confidence interval for both correlations did not include the value 1.0. Thus, the overall results of the paired-construct test demonstrated that internet banking (IB) facilitating conditions and IB time saving were indeed two different constructs, as well as IB time saving and IB convenience.

Considering the results presented of the concurrent users measurement model in this section, it is also reasonable to assert that the measurement model provided sufficient evidence of construct validity and discriminant validity.

TABLE 7.40
RESULTS OF THE CHI-SQUARED DIFFERENCE TEST

| Paired-constructs | χ^2 Unconstrained model (df) | χ^2 Constrained model (df) | χ^2 difference test | | |
|---|--|--|--------------------------|-------------|--------|
| | | | $\Delta\chi^2$ | Δdf | p |
| IB facilitating conditions - IB time saving | 87.7 (19) | 229.1 (20) | 141.4 | 1 | <0.001 |
| IB time saving - IB convenience | 293.1 (34) | 740.3 (35) | 447.2 | 1 | <0.001 |

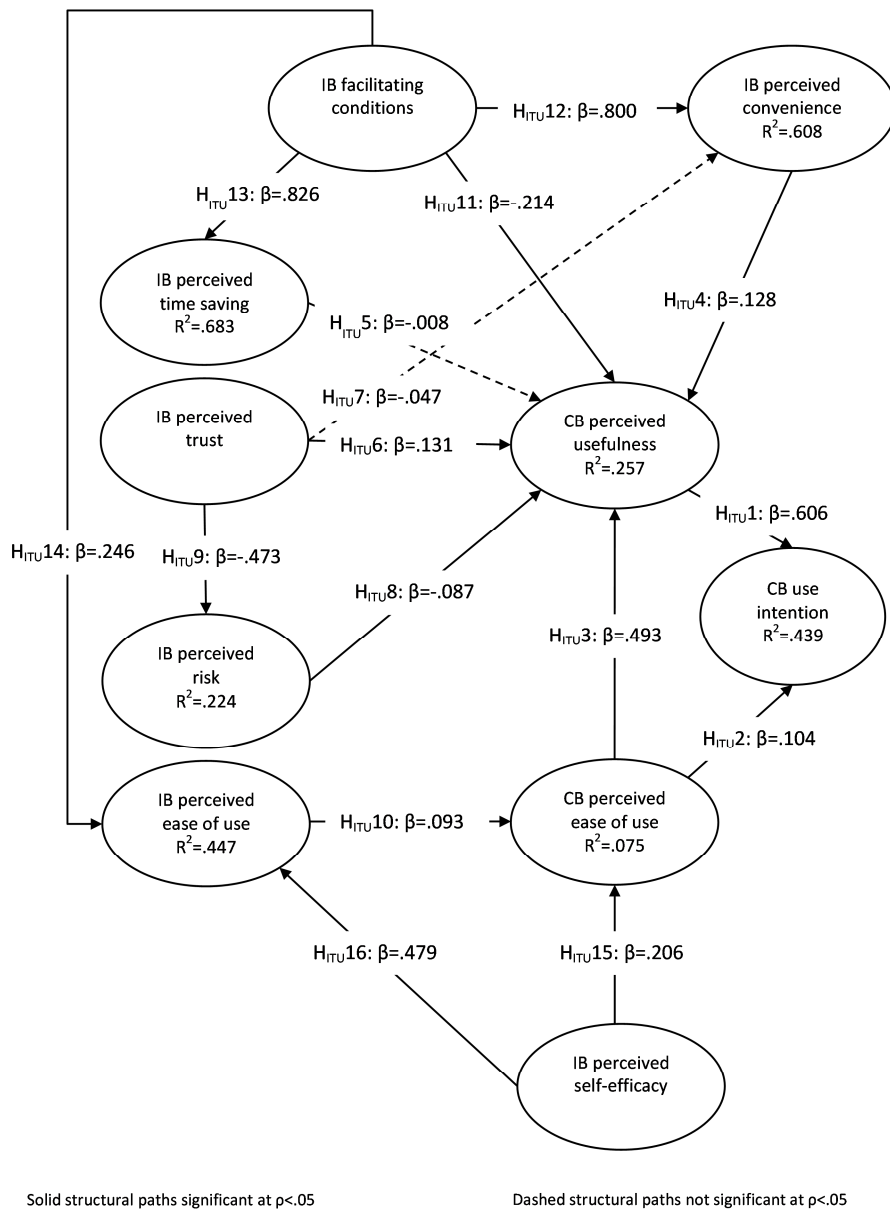
7.5 ASSESSMENT OF THE STRUCTURAL MODEL: THE USERS OF ONLY INTERNET BANKING

AMOS 20.0 was used to create the covariance-based structural equations model for the users of internet banking model. The values of the model fit indices were $\chi^2/df=2.880$, CFI=0.943, TLI=0.938 and the RMSEA was 0.053. Considering the recommended cut-off values reported earlier, the conclusion was made that the data fitted the proposed structural model adequately.

Figure 7.1 presents the results of the testing of the structural model with the data of the users of internet banking. The structural model explained 43.9% of the variance in the intention to use cellphone banking construct. The determinants of the perceived usefulness of cellphone banking (CB) explained 25.7% of the variance in the construct, whilst internet banking (IB) ease of use and self-efficacy perceptions explained 7.5% of the

variance of the perceived ease of use of CB. The results in Figure 7.1 also demonstrate that for the users of internet banking, behavioural intention to use internet banking is influenced by CB usefulness and ease of use perceptions.

FIGURE 7.1
STRUCTURAL MODEL OF THE USERS OF ONLY INTERNET BANKING



The empirical results supported five of the six hypothesised expectation-transfer effects between the internet banking channel and cellphone banking channel. The results supported the expectation-transfer effect hypothesised between IB perceived convenience and CB perceived usefulness, IB perceived trust and CB perceived usefulness, and IB perceived risk and CB perceived usefulness. Thus, hypotheses H_{ITU4} , H_{ITU6} and H_{ITU8}

were accepted. Furthermore, empirical support was also found for the expectation-transfer effect hypothesised between IB perceived self-efficacy and CB perceived ease of use, and IB perceived ease of use and CB perceived ease of use. Thus, hypotheses H_{ITU15} and H_{ITU10} were also accepted. The study could not find support for the hypothesised expectation-transfer effect between IB time saving perceptions and the perceived usefulness of CB. Hypothesis H_{ITU5} was therefore rejected.

In the study, only one status-quo bias effect was hypothesised. The results of the testing of the structural model with the data of the users of only internet banking showed that the presence of IB facilitating conditions had a negative influence on the perceived usefulness of CB. So, hypothesis H_{ITU11} was accepted.

In addition to these results, the study also found support for the negative influence of IB trust perceptions on IB risk perceptions, and the positive influence of IB facilitating conditions on the perceived convenience and perceived time saving of IB. The results also showed that IB facilitating conditions had a positive influence on the perceived ease of use of IB and that IB perceived self-efficacy influenced IB ease of use perceptions. A summary of the hypotheses testing results is presented in Table 7.41.

TABLE 7.41
SUMMARY OF HYPOTHESES TESTING FOR THE USERS OF ONLY INTERNET BANKING

| Hypothesis | Independent | Dependent | Direction | Hypothesis Accepted/rejected |
|-------------------|-----------------------------|----------------------------|------------------|-------------------------------------|
| H _{ITU1} | Perceived usefulness of CB | CB use intention | + | Accepted |
| H _{ITU2} | Perceived ease of use of CB | CB use intention | + | Accepted |
| H _{ITU3} | Perceived ease of use of CB | Perceived usefulness of CB | + | Accepted |
| H _{ITU4} | Perceived convenience of IB | Perceived usefulness of CB | + | Accepted |
| H _{ITU5} | Perceived time saving of IB | Perceived usefulness of CB | + | Rejected |

| | | | | |
|--------------------|-----------------------------|-----------------------------|---|----------|
| H _{ITU6} | Perceived trust in IB | Perceived usefulness of CB | + | Accepted |
| H _{ITU7} | Perceived trust in IB | Perceived convenience of IB | + | Rejected |
| H _{ITU8} | Perceived risk of IB | Perceived usefulness of CB | - | Accepted |
| H _{ITU9} | Perceived trust in IB | Perceived risk of IB | - | Accepted |
| H _{ITU10} | Perceived ease of use of IB | Perceived ease of use of CB | + | Accepted |
| H _{ITU11} | IB facilitating conditions | Perceived usefulness of CB | - | Accepted |
| H _{ITU12} | IB facilitating conditions | Perceived convenience of IB | + | Accepted |
| H _{ITU13} | IB facilitating conditions | Perceived time saving of IB | + | Accepted |
| H _{ITU14} | IB facilitating conditions | Perceived ease of use of IB | + | Accepted |
| H _{ITU15} | IB perceived self-efficacy | Perceived ease of use of CB | + | Accepted |
| H _{ITU16} | IB perceived self-efficacy | Perceived ease of use of IB | + | Accepted |

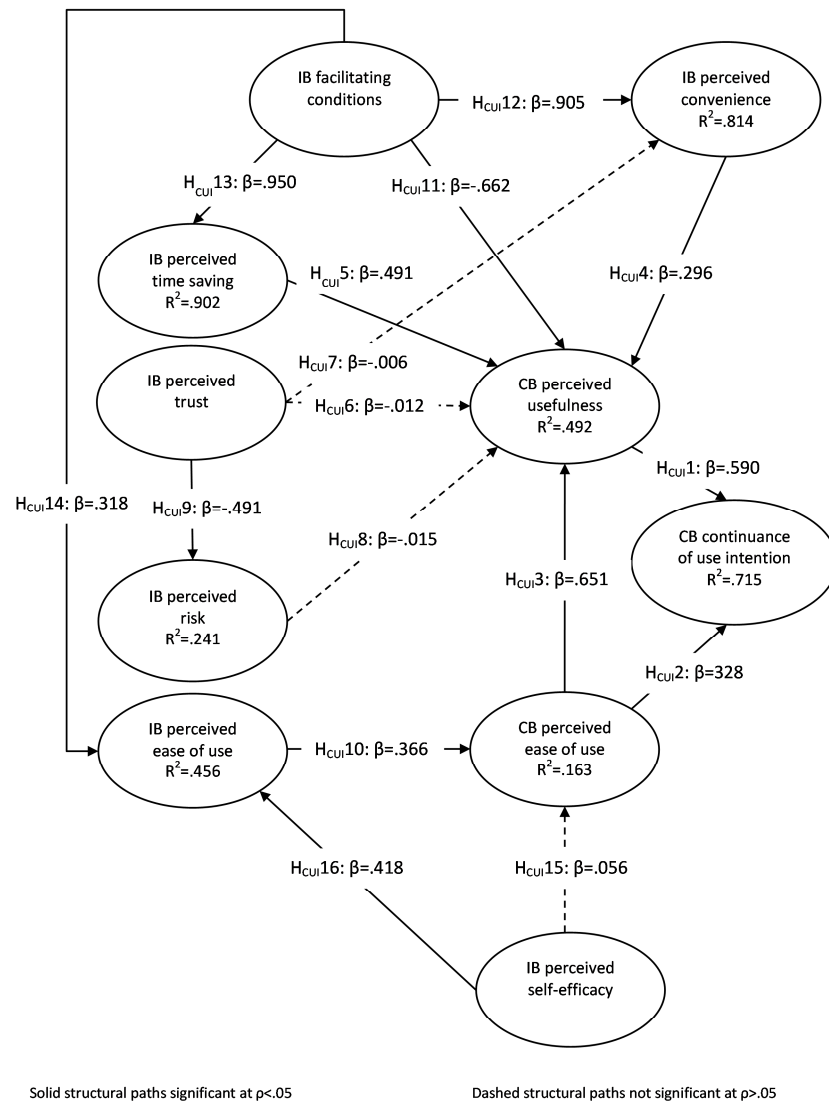
7.6 ASSESSMENT OF THE STRUCTURAL MODEL: THE USERS OF BOTH INTERNET AND CELLPHONE BANKING

The results of the assessment of the structural model with the data of the concurrent users also provide evidence of adequate fit. The χ^2/df was 2.653, CFI 0.937, TLI 0.932 and the RMSEA 0.058. The results of the assessment of the structural model are presented in Figure 7.2 and a summary in Table 7.42.

In Figure 7.2 the hypothesised model explains 71.5% of the concurrent users' behavioural intention to continue to use cellphone banking. In the users of both internet and cellphone banking structural model, both the perceptions of usefulness and ease of use of cellphone banking have a significant positive influence on continuance of use intentions of cellphone

banking. Thus, hypotheses H_{CUI1} and H_{CUI2} were supported. The results also showed that CB ease of use perceptions influenced CB usefulness perceptions. Thus, hypothesis H_{CUI3} was also accepted.

FIGURE 7.2
STRUCTURAL MODEL OF THE USERS OF BOTH INTERNET AND CELLPHONE BANKING



The empirical results of assessment of the structural model with the data of the concurrent users provided support for three of the six expectation-transfer effects. Firstly, the influences of IB perceived convenience and IB perceived time saving on CB perceived usefulness were significant. Thus, hypotheses H_{CUI4} and H_{CUI5} were accepted. However, the influences of IB perceived trust and IB perceived risk on the perceived usefulness of CB were not significant (hypotheses H_{CUI6} and H_{CUI8} were rejected). Furthermore, the influence of IB ease of use perceptions on CB ease of use perceptions was significant

(hypothesis H_{CUI10} was accepted), whilst the influence of IB perceived self-efficacy on CB perceived ease of use was not significant (H_{CUI15} was rejected). The influence of IB facilitating conditions on perceived usefulness of CB was significant and negative. Therefore, hypothesis H_{CUI11} , the only status-quo bias hypothesis in the concurrent users' structural model was accepted.

Similar to the results reported in section 7.6, IB perceived trust did not have a significant influence on the perceived convenience of IB. The negative influence of internet banking trust perceptions on IB risk perceptions was significant and the positive influences of IB facilitating conditions on IB perceived convenience and IB time saving were also significant. Furthermore, the positive influence of IB facilitating conditions on IB perceived ease of use was significant. However, the influence of IB perceived self-efficacy on IB perceived ease of use was not significant. A summary of the hypotheses testing results is presented in Table 7.42.

TABLE 7.42
SUMMARY OF HYPOTHESES TESTING FOR THE USERS OF BOTH INTERNET AND
CELLPHONE BANKING

| Hypothesis | Independent | Dependent | Direction | Hypothesis Accepted/rejected |
|-------------------|-----------------------------|---------------------------------|------------------|-------------------------------------|
| H_{CUI1} | Perceived usefulness of CB | CB continuance of use intention | + | Accepted |
| H_{CUI2} | Perceived ease of use of CB | CB continuance of use intention | + | Accepted |
| H_{CUI3} | Perceived ease of use of CB | Perceived usefulness of CB | + | Accepted |
| H_{CUI4} | Perceived convenience of IB | Perceived usefulness of CB | + | Accepted |
| H_{CUI5} | Perceived time saving of IB | Perceived usefulness of CB | + | Accepted |
| H_{CUI6} | Perceived trust in IB | Perceived usefulness of CB | + | Rejected |
| H_{CUI7} | Perceived trust in IB | Perceived convenience of IB | + | Rejected |

| | | | | |
|---------------------|-----------------------------|-----------------------------|---|----------|
| H _{CUI} 8 | Perceived risk of IB | Perceived usefulness of CB | - | Rejected |
| H _{CUI} 9 | Perceived trust in IB | Perceived risk of IB | - | Accepted |
| H _{CUI} 10 | Perceived ease of use of IB | Perceived ease of use of CB | + | Accepted |
| H _{CUI} 11 | IB facilitating conditions | Perceived usefulness of CB | - | Accepted |
| H _{CUI} 12 | IB facilitating conditions | Perceived convenience of IB | + | Accepted |
| H _{CUI} 13 | IB facilitating conditions | Perceived time saving of IB | + | Accepted |
| H _{CUI} 14 | IB facilitating conditions | Perceived ease of use of IB | + | Accepted |
| H _{CUI} 15 | IB perceived self-efficacy | Perceived ease of use of CB | + | Rejected |
| H _{CUI} 16 | IB perceived self-efficacy | Perceived ease of use of IB | + | Accepted |

7.7 MULTI-GROUP ANALYSIS

Before the structural weights were compared, measurement variance was assessed by means of a Chi-square difference test between an unconstrained structural model and a constrained measurement-weights model (measurement weights in the users of only internet banking structural model constrained to be equal to the measurement weights in the users of both internet and cellphone banking structural model). Full measurement invariance could not be established, but partial measurement invariance was confirmed. The model fit of both the unconstrained structural model ($\chi^2=4205.450$, $df=1520$, $RMSEA=.039$, $CFI=0.940$, $TLI=0.935$) and the partially constrained measurement-weights model ($\chi^2=4237.744$, $df=1541$, $RMSEA=0.039$, $CFI=0.940$, $TLI=0.936$) was good. The Chi-square difference test confirmed that the partially constrained measurement-weights model was not significantly different from the unconstrained structural model ($\Delta\chi^2=32.294$, $\Delta df=21$, $p>0.05$). The result of the invariance analysis of the hypothesised expectation-transfer effects and status quo bias effect are presented in Table 7.43.

TABLE 7.43
INVARIANCE ANALYSIS RESULTS OF THE EXPECTATION-TRANSFER AND
STATUS QUO BIAS HYPOTHESES

| Hypotheses | Users of only internet banking | | Users of both internet and cellphone banking | | Invariance analysis | | |
|--|--------------------------------|--------|--|--------|---------------------|-----------------|--------|
| | SW | ρ | SW | ρ | Δdf | $\Delta \chi^2$ | ρ |
| H4: IB perceived convenience – CB perceived usefulness | 0.128 | <.05 | 0.296 | <.05 | 1 | 0.371 | 0.543 |
| H5: IB perceived time saving – CB perceived usefulness | -0.008 | >.05 | 0.491 | <.05 | 1 | 3.773 | 0.053 |
| H6: IB perceived trust – CB perceived usefulness | 0.131 | <.05 | -0.012 | >.05 | 1 | 4.202 | 0.040 |
| H8: IB perceived risk – CB perceived usefulness | -0.087 | <.05 | -0.015 | >.05 | 1 | 3.320 | 0.068 |
| H10: IB perceived ease of use – CB perceived ease of use | 0.093 | <.05 | 0.366 | <.05 | 1 | 7.385 | 0.007 |
| H11: IB facilitating conditions – CB perceived usefulness | -0.214 | <.05 | -0.662 | <.05 | 1 | 1.203 | 0.273 |
| H15: IB perceived self-efficacy – CB perceived ease of use | 0.206 | <.05 | 0.056 | >.05 | 1 | 3.942 | 0.047 |

Three significant group differences were detected, while one tested group difference was approaching significance. The results show that the influence of IB perceived trust on the perceived usefulness of CB was indeed significantly different in the nomological model between the two cohorts. Thus, the influence of IB perceived trust on CB perceived usefulness is indeed stronger for the users of internet banking. Furthermore, the invariance analysis indicated that the influence of IB self-efficacy perceptions on CB ease of use perceptions was also significantly different in the nomological models of the two cohorts. Therefore, it can be concluded that the influence of IB perceived self-efficacy is

stronger for the users of internet banking. And lastly, the influence of IB ease of use perceptions on CB ease of use perceptions was stronger for the concurrent users. The Chi-square difference for the IB perceived time saving – CB perceived usefulness relationship was approaching significance ($p = 0.543$).

Considering the results of the invariance analysis, it can be concluded that the formation of behavioural intention between the users of only internet banking and the concurrent users differ in respect of the influence of IB perceived trust on CB perceived usefulness, as well as for the influences of IB perceived ease of use and IB perceived self-efficacy on CB perceived ease of use.

7.8 SUMMARY

This chapter contribute to the overall realisation of the primary objective of the study by analysing the data collected in the empirical phase in accordance with the data analysis techniques discussed in Chapter 6. The most important results in this chapter were the results of the hypotheses testing and the invariance analysis. The results of the hypotheses testing do indeed provide evidence of expectation-transfer between internet and cellphone banking and that status quo bias can influence the formation of behavioural intention to use cellphone banking and the continuance of use of cellphone banking. The results show that for the users of only internet banking there are more sources of expectation-transfer between the internet banking and the cellphone banking channel, while in both cohorts the status quo bias caused by IB facilitating conditions influence perceptions of usefulness of cellphone banking. From the results of the invariance analysis it can be concluded that in the nomological model tested with the data of both cohorts, the influence of IB perceived trust on CB perceived usefulness, as well as the influence of IB perceived self-efficacy on CB perceived ease of use are stronger for users of only internet banking. Conversely, the invariance analysis showed that the influence of IB perceived ease of use on CB perceived ease of use is stronger for the users of both internet and cellphone banking.

In the next chapter the main findings of the data analysis in this chapter will be summarised, conclusions will be made where appropriate and recommendations for the marketing of cellphone banking to users of internet banking will be presented.

CHAPTER 8

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

The primary objective of this study was to assess the influence of cognitive evaluations of internet banking on the formation of intention to use and the continuance of use intention of cellphone banking. Chapter 1 provided a broad overview of the study and explained the research problem and the research methodology. In Chapter 2 the concept of multi-channel marketing within the context of the marketing discipline was considered. Chapter 3 provided an overview of internet and cellphone banking which included a discussion on the scope of internet and cellphone banking services, as well as the benefits of internet and cellphone banking. In Chapter 4 the focus was on the dominant technology adoption theories, as well as the major theories that can explicate cross-channel cognitive evaluations.

In Chapter 5, drawing on the discussions and literature reviews in Chapter 3 and Chapter 4, as well as related technology acceptance literature, a conceptual model was developed of the formation of intention to use and the continuance of use intention of cellphone banking in an internet banking context. In Chapter 6 the methodology that was followed in the study was discussed in more detail and in Chapter 7 the empirical findings of the survey conducted among the users of internet banking only and the users of internet and cellphone banking were presented. The purpose of Chapter 7 was to test the conceptual model with the data collected from the two cohorts namely, users of only internet banking and the users of both internet and cellphone banking. This chapter will conclude the study by drawing conclusions based on the findings of the empirical study and the literature study. Lastly, the conclusions will be used to make recommendations that could assist marketing managers of cellphone banking services in enhancing the adoption and the continuance of use of cellphone banking by bank customers using internet banking.

8.2 A REVIEW OF THE VALIDITY OF THE STRUCTURAL EQUATIONS MODELS

To evaluate the results, findings and contribution of this study, one has to consider the validity of the covariance-based structural equations model based on the data from the two

cohorts. In the case of the users of only internet banking, the hypothesised structural equations model fits the data adequately (the $\chi^2/df=2.880$, CFI=0.943, TLI=0.938 and the RMSEA was 0.053). In the users of only internet banking structural equations model only two of the 16 hypotheses were rejected. Moreover, the hypothesised structural relationships explained 44% of the variance of the main dependent variable (CB use intention). Additionally, the standardised structural weights of six of the statistical significant hypothesised structural paths are considered to be medium influences, three are considered to be strong influences, whilst five hypothesised influences are considered to be small. The classification of the influences of the independent variables on the dependent variables are based on the arbitrary taxonomy that standardised structural weights smaller than 0.2 represent small influences, structural weights larger than 0.2 and up-to 0.5 represent medium influences, and that structural weights larger than 0.5 are strong influences. The strong influences were $\beta=0.606$ (CB perceived usefulness – CB use intention), $\beta=0.800$ (IB facilitating conditions – IB perceived convenience) and $\beta=0.826$ (IB facilitating conditions – IB time saving). All these indicators offer substantial support for the conclusion that the model for the users of only internet banking, demonstrates sufficient construct validity.

The assessment of the hypothesised structural equations model based on the data of the concurrent users also revealed adequate fit (χ^2/df was 2.653, the CFI 0.937, the TLI 0.932 and the RMSEA 0.058). The R^2 of CB continuance of use intention was 0.715 and the R^2 of CB perceived usefulness was 0.492. Furthermore, the standardised structural weights of seven of the twelve statistically significant hypothesised structural paths are considered to be medium influences and five are deemed to be strong influences. The strong influences were $\beta=0.590$ (CB perceived usefulness – CB use intention), $\beta=0.651$ (CB perceived ease of use – CB perceived usefulness), $\beta=-0.662$ (IB facilitating conditions – CB perceived usefulness), $\beta=0.905$ (IB facilitating conditions – IB perceived convenience) and $\beta=0.950$ (IB facilitating conditions – IB time saving). These relationships are consistent with the literature and together with all the other indicators offer substantial support for the conclusion that the model for the concurrent users demonstrates sufficient construct validity.

8.3 MAJOR FINDINGS AND CONCLUSIONS

In this section the findings of the empirical survey, where appropriate, will be discussed against the backdrop of the literature study. The findings and conclusions will be linked with the corresponding sections of the questionnaire.

8.3.1 Overall findings and conclusions

8.3.1.1 *The use of internet banking to pay accounts*

The data collected showed that the users of both internet and cellphone banking pay approximately 73% of their accounts by means of internet banking, whilst the users of only internet banking use internet banking to pay approximately 74% of their accounts. The result of an independent sample *t*-test showed that the monthly use of internet banking to pay accounts did not differ statistically between the users of internet and cellphone banking and the users of only internet banking.

The conclusion that can be drawn from the results discussed above is that the concurrent users continue to use internet banking to the same extent to pay accounts as the only internet banking users. Thus, irrespective of the fact that internet banking and cellphone banking are concurrent channels, and despite the added convenience of cellphone banking (anywhere, anytime banking), it appears that the concurrent users still prefer to do their monthly account payments by means of internet banking.

8.3.1.2 *The use of internet banking for cash transfers*

The users of both internet and cellphone banking use internet banking for approximately 88% of their cash transfers conducted during a typical month, whilst the users of internet banking use internet banking for approximately 93% of the cash transfers that they do during a typical month. A *t*-test showed that the use of internet banking for cash transfers statistically differs between the two cohorts.

It appears that the internet banking only users do on average more transfers by means of internet banking than the concurrent users. In contrast to the conclusion in section 8.3.1.1, it appears that the concurrent users use alternative banking channels, of which cellphone banking is one of the alternative channels, to do cash transfers. It may be the case that the

convenience of cellphone banking plays a major role for concurrent users to use the cellphone banking channel to do some of their monthly cash transfers.

8.3.1.3 *The use of internet banking for balance enquiries*

The users of both internet and cellphone banking use internet banking for approximately 78% of their monthly balance enquiries, while the users of only internet banking use it for approximately 89% of their monthly balance enquiries. The statistical difference for the use of internet banking for balance enquiries is about 12% between the two cohorts. A *t*-test confirmed that the use of internet banking for balance enquiries also statistically differs between the two cohorts.

Thus, the users of only internet banking on average do more balance enquiries by means of internet banking than the concurrent users. Once again, it appears that the concurrent users use alternative banking channels, of which cellphone banking is one of the identified channels in the study, to do balance enquiries. Generally-speaking, cellphone banking should be more convenient to use for balance enquiries than using an ATM or visiting a bank branch. However, depending on whether a user of both internet and cellphone banking is also a user of telephone banking, the convenience offered by self-help telephone banking to a greater extent than agent-assisted telephone banking may be comparable to the convenience offered by cellphone banking to do balance enquiries. However, due the cost (call cost) of telephone banking, cellphone banking may offer better value to bank customers than telephone banking.

8.3.1.4 *The use of internet banking for drawing statements*

The empirical results revealed that the users of both internet and cellphone banking use internet banking to a lesser extent than the users of only internet banking for the drawing of statements during a typical month. The users of both internet and cellphone banking use internet bank for approximately 84% of account statement requests, whilst the users of only internet banking use it for approximately 89% of their monthly account statement requests. Although the statistical difference for the use of internet banking for account statement requests was only about 4% between the two cohorts, the results of the *t*-test showed that the use of internet banking for drawing account statement does indeed differ statistically between the two cohorts.

The internet banking only users do on average more account statement requests by means of internet banking than the users of both internet and cellphone banking. Again this result shows that the concurrent users use alternative banking channels, of which cellphone banking is one of the banking channels, more to draw account statements. Comparing the alternative channels that bank customers can use to draw account statements, cellphone banking should be more convenient to use for drawing account statements than visiting an ATM, going into a bank branch or requesting a statement via telephone banking. The convenience of cellphone banking for drawing account statements exceeds the convenience offered by telephone banking as the account statement can be viewed immediately on a cellphone.

8.3.2 Findings and conclusions – users of only internet banking

In this section the major findings of the users of only internet banking cohort are reported.

8.3.2.1 *The influence of IB convenience perceptions on the perceived usefulness of CB (H_{ITU4})*

The results of the assessment of the structural model with the data of the users of only internet banking showed that the perceived convenience of internet banking did exert a positive influence of the perceived usefulness of cellphone banking as hypothesised ($\beta=.128$, $p<.05$). Thus, the more the users of only internet banking perceive internet banking to be convenient, the more they perceive cellphone banking to be useful.

The convenience of internet banking does seem to play a significant role in the formation of the cellphone banking (CB) perceived usefulness for the users of internet banking. Thus, a cross-channel cognitive evaluative synergy, based on expectation-transfer, does exist between the perceived convenience of internet banking (IB) and the perceived usefulness of cellphone banking.

8.3.2.2 *The influence of IB time saving perceptions on the perceived usefulness of CB (H_{ITU5})*

For the users of only internet banking, the influence of IB perceived time saving on the perceived usefulness of CB was not significant ($\beta=-.008$, $p>.05$).

It can thus be concluded that the perceived time saving of internet banking does not play a significant role in the formation of the perceived usefulness of CB for the users of only internet banking. Thus, a cross-channel cognitive evaluative synergy, based on expectation-transfer, does not exist between the perceived time saving benefit of internet banking and the perceived usefulness of cellphone banking.

8.3.2.3 *The influence of IB trust and risk perceptions on the perceived usefulness of CB (H_{ITU6} and H_{ITU8})*

The results of the assessment of the structural model with the data of the users of only internet banking showed that IB perceived trust exerted a positive influence on CB perceived usefulness for users of only internet banking ($\beta=.131$, $p<.05$). Furthermore, IB risk perceptions also exerted a negative influence on the perceived usefulness of CB ($\beta=-.087$, $p<.05$). Thus, as the users of only internet banking gain more trust in the use of internet banking, they will perceive cellphone banking as more useful. However, if the users of internet banking perceive more risk in the use of internet banking, they will perceive cellphone banking to be less useful.

The first conclusion is that for the users of only internet banking, beliefs about the trustworthiness of internet banking and the risks of using internet banking play a significant role in the formation of the perceived usefulness of cellphone banking. These findings do indeed show that the users of internet banking draw on their trust and risk beliefs about internet banking to form a perception about the usefulness of cellphone banking. The IB perceived trust – CB perceived usefulness relationship is thus a cross-channel evaluative synergy as hypothesised (see Chapter 5), while the IB perceived risk – CB perceived usefulness relationship is a cross-channel evaluative dissynergy. These relationships can be explained by Expectation-transfer Theory and inter-channel trust transfer (see Chapter 5). Furthermore, based on the findings discussed above, it can also be concluded that the users of only internet banking view internet and cellphone banking similar to the extent that they consider internet banking trust and risk perceptions as proxies for the perceived trust and risk of cellphone banking.

8.3.2.4 *The influence of IB ease of use perceptions on the perceived ease of use of CB (H_{ITU10})*

The results of this study revealed that the perceived ease of use of IB did have a positive influence on the perceived ease of use of CB ($\beta=.093$, $p<.05$) for the users of only internet banking. Thus, the more the users of internet banking perceived internet banking as easy to use, the more they will also perceive cellphone banking to be easy to use.

In other words, in the development of their perceptions about the ease of use of cellphone banking, the users of only internet banking do take into account their beliefs about the ease of use of internet banking. This finding corroborates the view that bank clients perceive similarities between the internet and cellphone banking; otherwise the cross-channel evaluative synergy would not have been significant.

8.3.2.5 *The influence of IB facilitating conditions on the perceived usefulness of CB (H_{ITU11})*

The results of the assessment of the structural model with the data of the users of only internet banking showed that internet banking facilitating conditions did exert a negative influence on the perceived usefulness of cellphone banking as hypothesised ($\beta=-.214$, $p<.05$). Thus, the more users of internet banking have the necessary resources to use internet banking (access to a computer to do internet banking, time and money), the less they will perceive cellphone banking to be useful. Moreover, the negative influence of IB facilitating conditions on the perceived usefulness of CB was stronger than the influences of IB perceived convenience, trust and risk on the perceived usefulness of cellphone banking.

It can be concluded that IB facilitating conditions has a negative significant influence on the perceived usefulness of cellphone banking. This negative influence leads to a status quo bias effect among the users of only internet banking that creates a barrier to the adoption of cellphone banking. Considering the relationship between IB facilitating conditions and the perceived usefulness of CB, as well as the fact that the respondents in this cohort are users of only internet banking, it can be concluded that cellphone banking is not viewed as a complementary channel by the users of only internet banking.

8.3.2.6 *The influence of IB self-efficacy perceptions on the perceived ease of use of CB (H_{ITU15})*

As hypothesised, IB self-efficacy perceptions did indeed exert a positive influence on perceived ease of use of CB ($\beta=.206$, $p<.05$) for users of only internet banking. Thus, for the users of only internet banking, their efficacy in using internet banking does play a significant role in the formation of their perceptions of the ease of use of cellphone banking.

It is clear that internet banking self-efficacy perceptions plays a role in the formation of the ease of use perceptions of cellphone banking for the users of only internet banking. Thus, the more a user of only internet banking believes in his/her self-efficacy to use internet banking, the more he/she will perceive cellphone banking to be easy to use. The positive IB perceived self-efficacy – CB perceived ease of use relationship provides more evidence that expectation-transfer occurs between the internet banking and the cellphone banking channel. This result also offers more evidence that the users of only internet banking perceive internet and cellphone banking to be very similar, otherwise IB self-efficacy beliefs would not have a positive influence on the perceived ease of use of CB.

8.3.3 Findings and conclusions – users of both internet and cellphone banking

8.3.3.1 *The influence of IB convenience perceptions on the perceived usefulness of CB (H_{CU14})*

Similar to the finding in the users of internet banking cohort (see section 8.3.2.1), IB convenience perceptions did have a positive influence on perceived usefulness of CB ($\beta=.296$, $p<.05$) for the concurrent users of both internet and cellphone banking. Thus, the more the users of both internet and cellphone banking perceived internet banking to be convenient, the more they will perceive cellphone banking to be useful.

This finding concurs with the literature review in Chapter 5 that suggested that as a result of the similarity of internet and cellphone banking, especially because internet and cellphone banking are concurrent channels, the attributes of internet banking act as reference points in bank clients' evaluation of the gains and losses associated with the use of cellphone banking (in this case, the perceived usefulness of cellphone banking).

Therefore, a cross-channel evaluative synergy exists between the perceived convenience of IB and the perceived usefulness of CB.

8.3.3.2 *The influence of IB time saving perceptions on the perceived usefulness of CB (H_{CUI5})*

In contrast to the IB perceived time saving – CB perceived usefulness finding in the users of only internet banking cohort (see section 8.3.2.2), IB time saving perception did have a significant positive influence on the perceived usefulness of CB ($\beta=.491$, $p<.05$) for the concurrent users. Thus, the more the users of both internet and cellphone banking perceived internet banking to be convenient, the more they will perceived cellphone banking to be useful.

This finding also concurs with the literature review in Chapter 5 that suggested that the attributes of internet banking act as reference points in bank clients' evaluation of the gains and losses associated with the use of cellphone banking (in this case, the perceived usefulness of cellphone banking). Therefore, a cross-channel evaluative synergy exist between IB perceived time saving and CB perceived usefulness. Moreover, considering the result that IB perceived time saving did not have a positive influence of CB perceived usefulness for the users of only internet banking, it may be that the IB perceived time saving – CB perceived usefulness cross-channel evaluative synergy plays an important role in the adoption of both internet and cellphone banking.

8.3.3.3 *The influence of IB trust and risk perceptions on the perceived usefulness of CB (H_{CUI6} and H_{CUI8})*

In contrast to the findings in the assessment of the structural model with the data of the users of only internet banking, IB trust and risk perceptions did not exert significant influences on the perceived usefulness of CB as hypothesised ($\beta=-.012$ $p>.05$ and $\beta=-.015$, $p>.05$, respectively). Thus, no cross-channel evaluative synergy existed between the perceived trustworthiness and the perceived risk of internet banking, and the perceived usefulness of cellphone banking.

The literature study in Chapter 5 showed that, in general, the trust-usefulness and risk-usefulness relationships do exist. It was further argued in Chapter 5 that due to expectation-transfer, supported by inter-channel trust transfer, IB perceived trust

influences CB perceived usefulness. However, the study could not confirm the two hypothesised expectation-transfer effects among the concurrent users. Thus, it can be concluded that for concurrent users their internet banking trust and risk beliefs do not serve as proxies in the formation of their perceptions of the usefulness of cellphone banking. A reason for this result can be that the concurrent users have first-hand experience with the use of cellphone banking. As a result, they do not need to draw on internet banking trust and risk beliefs to assess the usefulness of cellphone banking.

8.3.3.4 *The influence of IB ease of use perceptions on the perceived ease of use of CB (H_{CU10})*

For the users of both internet and cellphone banking, IB ease of use perceptions did indeed influence the perceived ease of use of CB ($\beta=.366$, $p<.05$). This result confirms that the perceived ease of use of cellphone banking serve as a proxy in the formation of the concurrent users' ease of use perceptions of cellphone banking.

The main conclusion derived from the IB perceived ease of use – CB perceived ease of use result is that the more a bank client experiences internet banking to be easy to use, the more likely it is that they will also perceive cellphone banking as easy to use. Once again, the IB perceived ease of use – CB perceived ease of use result shows that a cross-channel cognitive synergy exists between the internet banking channel and the cellphone banking channel. Given the similarities between internet and cellphone banking, this cross-channel synergy is expected.

8.3.3.5 *The influence of IB facilitating conditions on the perceived usefulness of CB (H_{CU11})*

Similar to the results of the assessment of the structural model with the data of the users of only internet banking (section 8.3.2.5), IB facilitating conditions had a negative influence on the perceived usefulness of CB for the users of both internet and cellphone banking ($\beta=-.662$, $p<.05$). Thus, as the resources (access to a computer connected to the Internet, time and money) to use internet banking become scarcer for the concurrent users, the more they perceive cellphone banking as useful.

Cellphone banking thus becomes more useful for the users of both internet and cellphone banking when they have inadequate access to a computer for internet banking, and limited

time and money to use internet banking. On the other hand, cellphone banking becomes less useful for the users of internet and cellphone banking when they have more access to a computer for internet banking, and more time and money to use internet banking. Considering the inverse relationship between IB facilitating conditions and CB perceived usefulness for the concurrent users, as well as the fact that they use both internet and cellphone banking, it can be concluded that internet banking and cellphone banking are complementary channels for the users of both internet and cellphone banking.

8.3.3.6 *The influence of IB self-efficacy perceptions on the perceived ease of CB* (H_{CUI15})

For the users of both internet and cellphone banking, IB self-efficacy expectations did not have a significant positive influence on the perceived ease of use of CB ($\beta=.056$ $p>.05$).

This result implies that the internet banking self-efficacy of the concurrent users of internet and cellphone banking does not play a role in the formation CB perceived ease of use. Thus, in contrast to the IB perceived self-efficacy – CB perceived ease of use result (see section 8.3.2.6) for the users of only internet banking, a cross-channel cognitive evaluative synergy based on expectation-transfer does not exist.

8.3.4 Findings and conclusions – invariance analysis

One of the secondary objectives of the study was to investigate the relationships between bank clients' beliefs about internet banking and the formation of intention to adopt and the continuance of use intention of cellphone banking by means of structural equations modelling analysis. To further realise this secondary objective a structural equations modelling invariance analysis was done. The purpose of the invariance analysis is to determine statistically whether the hypothesised cross-channel cognitive evaluations, as well as the hypothesised status quo bias effect, differ between the two cohorts.

8.3.4.1 *Regression weight comparison of IB perceived trust – CB perceived usefulness*

In the structural equations model of the users of only internet banking the IB perceived trust – CB perceived usefulness structural path was significant, but not in the structural equations model of the concurrent users. The invariance analysis showed that the IB

perceived trust - CB perceived usefulness structural weight did not hold invariant across the two cohorts.

The invariance analysis result confirms that although the IB perceived trust – CB perceived usefulness relationship is only 0.131 in the structural model of the users of only internet banking, it is statistically different from the non-significant influence in the concurrent users' model. Thus, invariance analysis result confirms that the users of only internet banking use IB perceived trust as a proxy for evaluating the usefulness of cellphone banking, whilst the concurrent users do not.

8.3.4.2 Regression weight comparison of IB perceived ease of use – CB perceived ease of use

The invariance analysis also showed that the IB perceived ease of use - CB perceived ease of use regression weight did not hold invariant across the two cohorts. This finding shows that for the users of both internet and cellphone banking the influence of IB perceived ease of use on CB perceived ease of use is indeed stronger than for the users of internet banking.

For the concurrent users of both internet and cellphone banking, the influence of IB perceived ease of use is stronger in the formation of CB perceived ease of use than for the users of internet banking. Thus, it can be concluded that the concurrent users use IB perceived ease of use more as a proxy for evaluating the ease of use of cellphone banking.

8.3.4.3 Regression weight comparison of IB perceived self-efficacy – CB perceived ease of use

The IB perceived self-efficacy – CB perceived ease of use structural path was significant in the structural model of the users of only internet banking, but not in the structural model of the concurrent users. The invariance analysis showed that the IB perceived self-efficacy - CB perceived ease of use structural weight also did not hold invariant across the two cohorts.

The result of the invariance analysis confirms that the significant structural weight differs statistically from the non-significant structural weight in the nomological model. Thus, it can be concluded that the users of only internet banking use their internet banking self-

efficacy perceptions as a proxy for evaluating the ease of use of cellphone banking, while the concurrent users do not.

8.4 RECOMMENDATIONS TO ENHANCE THE ADOPTION OF CELLPHONE BANKING BY THE USERS OF ONLY INTERNET BANKING

The adoption and the continuance of use of cellphone banking by bank clients using internet banking can lead to multiple benefits for banks. Therefore, stimulating the concurrent use of internet and cellphone banking by clients should be an important point on the marketing agenda of banks.

Based on the findings and conclusions presented in section 8.3.2 and section 8.3.4, the following recommendations can be offered to enhance the adoption of cellphone banking by bank clients who are only using internet banking.

Recommendation 1: The users of internet banking do consider internet banking and cellphone banking to be similar technologies to a certain extent. Therefore, their perceptions of the trustworthiness and risks of internet banking can influence their perceptions of the usefulness of cellphone banking. To enhance the adoption of cellphone banking by the users of only internet banking, it is recommended that internet banking services maintain particularly high levels of trustworthiness and ensure that clients are not exposed to any risk. To enhance trustworthiness, internet banking systems must be reliable. Therefore, it is recommended that internet banking systems are well maintained so that system down-time are limited and that internet banking systems operate as expected even during high-volume user times such as the beginning or the end of a month. To lower the perceived risk of internet banking, it is recommended that internet bank service developers continually develop enhanced security features for internet banking. Furthermore, it is essential that internet banking managers continually educate clients on how to protect their passwords and to make them aware of new security threats such as new phishing schemes.

Recommendation 2: In section 8.3.2.5 it was pointed out that the users of only internet banking does not consider cellphone banking to be a complementary channel to internet banking. An analysis of the cellphone banking information on the web sites of ABSA, Standard Bank, Nedbank and FNB revealed that cellphone banking is not explicitly

marketed as a complementary channel to internet banking, but just as a channel that offers bank clients high levels of convenience in doing bank transactions. Thus, for banks to realise the benefit of multi-channel marketing, it is recommended that the managers of cellphone banking position cellphone banking as a complementary banking channel to internet banking. To facilitate this positioning, banks need to inform internet banking users that although they may have regular access to internet banking, cellphone banking becomes particularly useful for those situations where a bank transaction must be done in the absence of convenient access to internet banking via a computer. Examples of such situations are: during holidays, while travelling, in retail stores and whilst doing leisure activities outdoors.

Recommendation 3: Users of only internet banking rely on of their beliefs of the ease of use of internet banking and self-efficacy to develop their perceptions of the ease of use of cellphone banking. Therefore, it is important for banks to make internet banking users aware that cellphone banking is 'just like internet banking'. Thus, marketing communications must point out the similarities in performing different bank transactions between internet and cellphone banking, as well as its interface similarities. Furthermore, marketing communications must also inform non-users of cellphone banking that the internet banking skills that they have developed while using internet banking are useful in the cellphone banking context. At this point in time, only FNB offers visitors to their website cellphone banking demonstrations. It is recommended that other banks should also provide realistic cellphone banking demonstrations on their websites and encourage the users of internet banking to try them out.

Recommendation 4: Lastly, it is vital for managers of cellphone banking services to establish and maintain, in the minds of the users of internet banking, the cognitive similarity between internet and cellphone banking. Thus, cellphone banking should also be marketed as 'doing internet banking by means of a cellphone'. Furthermore, marketing materials must also point out the similarities in the use and interface between internet and cellphone banking and how cellphone banking extends the convenience of internet banking.

8.5 RECOMMENDATIONS TO ENHANCE THE CONTINUANCE OF USE OF CELLPHONE BANKING BY THE USERS OF BOTH INTERNET AND CELLPHONE BANKING

Based on the findings and conclusions presented in section 8.3.3 and section 8.3.4, the following recommendations can be suggested to enhance the continuance of the use of cellphone banking by bank customers who are using both internet and cellphone banking.

Recommendation 1: Marketing communications perform three main tasks namely, informing, persuading and reminding consumers. Given that the users of internet and cellphone banking are users of both electronic banking channels, the objective of marketing communications must be to remind the concurrent users of the primary motivations underpinning their use of cellphone banking. Marketing communications should remind the users of both internet and cellphone banking that cellphone banking complements internet banking in situations where they do not have access to internet facilities or the time to use internet banking. This is an important point to remind concurrent users of, because of the strong negative relationship between IB facilitating conditions and CB perceived usefulness. Secondly, the users of both internet and cellphone banking should be reminded (using marketing communications) that they use cellphone banking because it is just as easy to use as internet banking. This recommendation leads to two other recommendations. One, banks must continually invest in the development of the functionality of internet banking sites to enhance the ease of use of the service. Two, it is also recommended that cellphone banking applications must be designed with ease of use in mind. Ease of use does not only have a significant influence on their (concurrent users') intentions to continue to use cellphone banking, but it is also a strong determinant of their perceived usefulness of cellphone banking. Given the new trend of the development of cellphone applications for smartphones, it is recommended that banks develop native applications for use on Nokia, Andriod, Blackberry and iPhone cellular phones. Furthermore, banks should continually invest in the development of these applications to enhance the user experience.

Recommendation 2: Concurrent users do not draw on their internet banking trust and risk beliefs to develop a perception of the usefulness of cellphone banking. Concurrent users are likely to use only cellphone banking trust and risk perceptions in determining the usefulness of cellphone banking. Therefore, to enhance the usefulness of cellphone

banking, concurrent users must experience cellphone banking as trustworthy and free of risk.

Recommendation 3: The perceived convenience and the perceived time saving of internet banking positively influence concurrent users' perception of the usefulness of cellphone banking. Therefore, it is also important that the users of both internet and cellphone banking to experience internet banking to be convenient and time saving. The results of the study showed that the convenience and time saving perceptions of internet banking are influenced by facilitating conditions. Unfortunately, the facilitating conditions (access to a computer to use for internet banking, time and money) are mostly outside the banks' direct control and scope of service delivery. Regardless, it is still recommended that banks attempt to maintain the convenience and the time-savings benefit of using internet banking by limiting periods of systems down-time or a slow loading of site pages.

8.6 THEORETICAL IMPLICATIONS OF THE STUDY

The study made the following theoretical contributions.

1. The most important theoretical contribution of this study is extension of the body of knowledge on intention to use and the continuance of use of cellphone banking. This study provides empirical evidence of how internet banking beliefs influence the perceived usefulness and the perceived ease of cellphone banking for the users of internet banking and the users of both internet and cellphone banking. This is a substantial theoretical contribution to previous cellphone banking Technology Acceptance Model (TAM) studies which did not consider the influence of internet banking on the two salient beliefs in the TAM.
2. Another important theoretical contribution of the study is the extension of the TAM with beliefs about another similar technology, already adopted by the respondents. Most previous TAM-related studies failed to consider the influence of other similar technologies on the formation of behavioural intention to adopt a technology, although in the real-world consumers often draw on their past experiences with other technologies to form perceptions about new or other technologies. In other words, previous studies mostly ignore expectation-transfer between technologies that share similarities. This study provides evidence that trust and risk beliefs regarding one technology, as well as beliefs about the benefits of that technology, can influence the perceived usefulness of another technology. More specifically, the

beliefs about self-efficacy and ease of use relating to a specific technology can also influence the perceived ease of use of another technology.

3. In the study of Falk et al. (2007) only satisfaction was identified as a factor contributing to status quo bias in a concurrent channel context. In this study facilitation conditions were identified as another factor contributing to status quo bias in a concurrent channel context. Thus, the study provides more insight into the factors underpinning status quo bias in a concurrent channel context.
4. The results of this study also confirmed the inter-channel trust transfer theory proposed by Lin et al. (2011). The results specifically show that inter-channel trust transfer may be a non-significant issue after the adoption of the other e-service. More importantly, the results of the study show that in addition to inter-channel trust transfer, inter-channel risk transfer is also possible in the pre-adoption stage.

8.7 LIMITATIONS OF THE STUDY AND FUTURE RESEARCH

The limitations of the study are that other banking services could also influence the formation of intention to adopt cellphone banking and the continuance of use of cellphone banking and that the antecedents of perceived usefulness and perceive ease of use in this study may not be applicable to other technologies. A recommendation for future research is therefore to consider bank clients' beliefs about other banking channels such as ATMs and telephone banking in the intention to use and the continuance of use intention of cellphone banking.

In this study, the influence of internet banking on the perceived usefulness and perceived ease of use of cellphone banking was investigated. A second suggestion for future research is to make use of a logistic regression analysis to determine which beliefs about internet banking and other relevant covariates increase the probability that a bank client adopts only internet banking or adopts both internet and cellphone banking.

The results of the study also showed that the expectation-transfer effects for IB perceived trust and IB perceived risk on CB perceived usefulness were only significant for the users of only internet banking. Further research is thus needed to validate whether inter-channel trust and risk are not significant effects in the post-adoption stage.

Lastly, future research can extend the conceptual model in this study by including internet banking satisfaction as an additional construct in the model. Internet banking satisfaction can have dual influences in the model. Following the study of Falk et al. (2007), internet

banking satisfaction can be included as a determinant of internet banking trust and risk (status quo bias effects). Internet banking satisfaction can also be included as a determinant of the perceived usefulness of cellphone banking. Empirical testing of the IB satisfaction - CB perceived usefulness relationship can confirm whether the relationship is an expectation-transfer effect or a status quo bias effect.

8.8 SUMMARY

In conclusion, the purpose of the study was to investigate how bank clients' cross-channel cognitive evaluations influence the formation of intention and the continuance of use intention of cellphone banking in an internet banking context. The study quantified the influence of internet banking cognitive evaluations on the formation of intention to use and the continuance of use intention of cellphone banking.

In addition to realising the primary objective to the study, this study could contribute to the future wider application of cellphone banking as it provides marketing managers with unique insights to enhance the adoption and the continuance of use of cellphone banking by the users of internet banking. More importantly, the study identifies cross-channel evaluative synergies and dissynergies that must be considered by the marketing managers of cellphone banking services. For the future success of cellphone banking, it is important for marketing managers to incorporate the recommendations of this study in their strategy formulation.

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APPENDIX A: ONLINE QUESTIONNAIRE

GENERAL DEMOGRAPHIC INFORMATION

Please answer the following questions by either ticking the appropriate answer or by typing the response in the space provided.

Gender:

1. Male
2. Female

Age:

Which bank(s) do you currently use for banking?

1. Absa
2. Standard bank
3. Nedbank
4. FNB
5. Capitec
6. Other _____

In which city or town do you live?

Do you use cellphone banking?

1. Yes
2. No

NON-USERS' PERCEPTION OF CELLPHONE BANKING

Please indicate the extent to which you agree or disagree with each of the following statements by ticking the appropriate answer.

Perceived usefulness of cellphone banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Using cellphone banking would enable me to do my banking transactions quicker. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Using cellphone banking would make it easier to do my banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cellphone banking would be useful. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Using cellphone banking would enhance the efficiency of my banking activities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Perceived ease of use of cellphone banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Cellphone banking would be easy to use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Learning to use cellphone banking would be easy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| It would be easy to become skilful in using cellphone banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I would find it easy to do what I want to do using cellphone banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Intention to use cellphone banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| I intend to use cellphone banking regularly in the future. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Assuming that I have access to cellphone banking services, I intend to use it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I will frequently use cellphone banking in the future. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I will use cellphone banking for my banking needs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

USERS' PERCEPTION OF CELLPHONE BANKING

Please indicate the extent to which you agree or disagree with each of the following statements by ticking the appropriate answer.

Perceived usefulness of cellphone banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Using cellphone banking enables me to do my banking transactions quicker. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Using cellphone banking makes it easier to do my banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cellphone banking is useful. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Using cellphone banking enhances the efficiency of my banking activities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Perceived ease of use of cellphone banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Cellphone banking is easy to use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Learning to use cellphone banking is easy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| It is easy to become skilful in using cellphone banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| I find it easy to do what I want to do using cellphone banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

Intention to continue to use cellphone banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| I intend to use cellphone banking regularly in the future. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I intent to use cellphone banking more regularly in the future. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I will frequently use cellphone banking in the future. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I will continue to use cellphone banking for my banking needs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

USE OF INTERNET BANKING

Do you use internet banking?

1. Yes
2. No

USE OF INTERNET BANKING

Please answer each of the questions by typing your answer into the space provided or by ticking the answer that best reflects your use of internet banking.

Considering my monthly usage of internet banking I would consider myself to be a

1. ...high user of internet banking.
2. ...moderate user of internet banking.
3. ...low user of internet banking.

During a typical month I

1. ...regularly log into my internet banking account.
2. ...seldom log into my internet banking account.

I do most of my banking in a month by means of internet banking.

1. Yes
2. No

How many times in a month on average do you log into your internet banking account?

| |
|--|
| |
|--|

Please indicate the following with regard to your personal finances and banking transactions. In the Average number of monthly transactions, irrespective of the mode of banking used column type your average total number of monthly accounts payable (examples of accounts payable include water and electricity bills, short term insurance bills, rates and taxes, monthly levies, monthly rent, in store accounts such as Edgars and

Game, DSTV/Mnet subscription, gym membership and cellphone account(s), monthly cash transfers, balance enquiries and account statements drawn. In the Average number of monthly transactions only by means of internet banking column, please indicate your average monthly usage of internet banking for each of the banking activities.

For example: I have on average 12 accounts payable monthly. Thus, I would type 12 into the Average number of monthly transactions, irrespective of the mode of banking used column. Of the 12 accounts payable, I pay only 8 by means of internet banking. Hence, I would type 8 into the Average number of monthly transactions only by means of internet banking column. Very important: The value in the Average number of monthly transactions only by means of internet banking column cannot be more than the value in the Average number of monthly transactions, irrespective of the mode of banking used column.

| | Total number of transactions, irrespective of the mode of banking used | Total number of transactions only by means of internet banking |
|---|--|--|
| Average number of monthly accounts payable. (This include all accounts payable) * | <input type="text" value="12"/> | <input type="text" value="8"/> |
| Average number of monthly cash transfers to other bank accounts or individuals. * | <input type="text" value="6"/> | <input type="text" value="5"/> |
| Average number of monthly account balance enquiries. ** | <input type="text" value="7"/> | <input type="text" value="4"/> |
| Average number of account statements drawn per month. ** | <input type="text" value="5"/> | <input type="text" value="4"/> |

| | Average number of monthly transactions, irrespective of the mode of banking used | Average number of monthly transactions only by means of internet banking |
|--|--|--|
| Accounts payable. (This includes all accounts payable) | <input type="text"/> | <input type="text"/> |
| Cash transfers to other bank accounts or individuals. | <input type="text"/> | <input type="text"/> |
| Account balance enquiries. | <input type="text"/> | <input type="text"/> |
| Account statements drawn. | <input type="text"/> | <input type="text"/> |

USERS' PERCEPTION OF INTERNET BANKING

Please indicate the extent to which you agree or disagree with each of the following statements by ticking the appropriate answer.

Perceived ease of use of internet banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Learning to use internet banking is easy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Using internet banking does not require a lot of mental effort. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| It is easy to use internet banking to do banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| It is easy to become skilful at using internet banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Perceived trust in internet banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Internet banking is trustworthy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking keeps its promises and commitments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking serves the present and future interests of users. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | | | |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Overall, I trust internet banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

Perceived convenience of internet banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Internet banking is convenient, because I can do banking activities from a place (like home or office) convenient for me. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking is convenient, because I can do banking activities any day of the week. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking is convenient, because I can do banking activities any time of the day. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking is convenient, because it minimises the effort in doing banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking minimises the hassle of doing banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Overall, internet banking is more convenient than other available modes of self-service banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

Perceived time saving of internet banking

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Internet banking minimises the time I spend doing banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking minimises my queuing time in the bank or to pay accounts at retailers. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking saves me time since I do not always have to go to the bank to do banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Internet banking minimises the time pressure when doing banking transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Overall, internet banking saves me time. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Perceived internet banking self-efficacy

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| I am confident of using internet banking even if I have only the online instructions for reference. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am confident of using internet banking even if there is no one around to show me how to do it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am confident of using internet banking even if I have just the online "help" function for assistance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am confident in using internet banking if I have sufficient time to complete the transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Internet banking facilitating conditions

| | Strongly disagree | Disagree | Slightly disagree | Un-decided | Slightly agree | Agree | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Throughout every day of the week I have access to a computer that I can use for internet banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I have the time to use internet banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I have the money to use internet banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Perceived risk of internet banking

| | Not at all risky 1 | 2 | 3 | 4 | 5 | 6 | Very risky 7 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Considering the possibility of monetary loss associated with internet banking, how risky do you consider internet banking to be? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Considering the possibility of harm to you resulting from the misuse of important personal and financial information due to the use of internet banking, how risky do you consider internet banking to be? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Considering the possible loss of privacy because of information collected about you as you use internet banking, how risky do you consider internet banking to be? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| How risky do you rate internet banking? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTACT DETAILS

First Name

Last Name

Phone

Email Address